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ORIGINAL ESSAYS.

*Description, analytical examination, and medical history, of
the CORNUS CIRGINATA or mountain willow, by ANSEL W.
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THE *Cornus Circinata* belongs to the class *Tetrandria* and order *Monogynia*. The genus is too well known to require description.

The specific characteristics of the *Circinata*, as given by Pursh, are as follows: “ramis verrucosis, foliis lata-ovalibus acuminatis subtus albo-tomentosis, cymis patentissimis.” The same author adds, that this plant is found growing on the banks of rivers from Canada to Virginia—that it flowers in June and July—that it is a shrub from six to ten feet high, with broad leaves waved on their edges, with white flowers and blue berries. [Pursh, vol. 1, page 108.]

The *Circinata* is not, however, confined to the banks of rivers; it is more commonly found on the northern and western sides of hills and mountains. It is known by the different names of mountain willow, dog-wood, and white rind.

The medicinal virtues of this plant reside in the bark, which, to the taste is bitter, astringent, and aromatic, yet it is more pleasant than that of the *cornus florida* or *sericea*. It is whitish or ash coloured, and from the smallness of the stalks

and branches of the shrub, it has when dry, the quilled appearance of the *cinchona lancifolia*.

The hot decoction of this bark is translucent and of a redish brown colour, but by cooling, it becomes turbid and assumes a yellowish appearance, like the cold decoction of Peruvian bark. The decoction and infusion are bitter and astringent to the taste; the latter is the more aromatic and pleasant.

Chemical analysis.—Copious and dense precipitates are produced, by adding to the decoction or infusion of this bark, either of the following reagents, viz: The various salts of iron, gelatin, muriate of tin, nitrate of silver, acetate and subacetate of lead, sulphate of alumine, and the concentrated mineral acids.

Two or three drops of the muriated tincture of iron changes half an ounce of the decoction to a bright indigo colour, and if an increased quantity of the iron be added, the new combination is precipitated in large quantity, and when separated by a filter and dried, has the appearance of pulverized indigo.

A solution of gelatin, added at intervals to a decoction containing the whole of the properties of the bark which are soluble in water, throws down tannin in the proportion of about one fourth in weight of the quantity of bark which yields it. This precipitate leaves the supernatant liquor clear and colourless, but when a solution of the salts of iron is dropped into it, it is changed to blue, and resembles the tincture of cabbage. It also precipitates the salts of lead, the muriate of tin, and the sulphate of alumine.

Silicated potash added to a decoction or infusion of the *Circinata*, causes a slight flocculent precipitate, but alcohol induces no change. The colour is not changed by vegetable blues.

The alcoholic tincture, when treated with the foregoing reagents, exhibits similar results, but the precipitates are less co-

pious. By adding water to the tincture, it gives it a cloudy appearance, and when the tincture is evaporated almost to dryness, water renders it turbid and white.

The foregoing experiments indicate the most prominent chemical constituents of the *Cortex Circinata*, and the following process shows its proper menstrua, and its best medicinal preparations.

I. Half an ounce of the coarsely powdered bark was boiled in a glass retort, with four ounces of water, till half the water was evaporated: the decoction was filtered, and four ounces more of water added to the residuum, and boiled in the same manner. As this solution exhibited nearly the same sensible properties as the last, it was filtered and the residuum again boiled in four ounces of pure water. This was but slightly changed in colour or taste. These several decoctions were mixed and evaporated in a sand bath. They yielded an astringent and-intensely bitter extract, weighing seventy-four grains.

The fluid distilled over during the first part of this process, was of a clouded milky appearance, and pleasantly aromatic to the smell and taste.

II. The bark remaining in the retort, after having been thus treated with water, was boiled ten minutes in four ounces of proof spirit. From this, when filtered and evaporated, was obtained five grains of an impure resin.

III. Half an ounce of the bark prepared as in the first experiment, was infused in ten ounces of boiling water, and kept at a moderate temperature, in a covered vessel, ten hours. It was then filtered and evaporated, and the product was sixty-two grains of extract, which was astringent and bitter, but more brilliant in appearance, and much more pleasant to the taste than that obtained from the decoction.

IV. Half an ounce of the powdered bark was digested seven days in alcohol. The alcohol extracted the sensible properties of the bark in some degree, though they were less

conspicuous than they were in the decoction or watery infusion. When evaporated, this tincture yielded thirty-six grains, of a very bitter, but not unpleasant extract.

The quantity of alcohol used in this experiment, was not accurately noted, but it was something less than is required of water to extract all the principles of the bark, which are soluble in it.

From the foregoing experiments, it appears that the bark of the *Circinata* contains large proportions of tannin and gallic acid; that it also contains an extractive and bitter principle, all of which are soluble both in water and in alcohol; but that water dissolves them most perfectly. That it contains resin and a small proportion of gum resin, which are insoluble in water, but partially soluble in proof spirit, and more completely in alcohol. That it contains an aromatic or essential oil, which is dissipated by boiling—soluble in alcohol.

From the whole, it is inferred, that water is the best menstruum of this bark, and that about ten ounces are required to extract all the virtues of half an ounce of it. By boiling, the bitter extractive is obtained in greater quantity than by infusion, but the decoction is less aromatic than the infusion, and more unpleasant to the taste, so that the latter is the most eligible preparation.

In New-Haven, the *Circinata* has recently been used to a considerable extent in the form of compound, or Huxham's Tincture, in the preparation of which it is substituted for the *Cinchona*; and I have been credibly informed, that it is not inferior when thus prepared, to the ordinary Huxham's Tincture. I regret that experience does not enable me to state satisfactorily the comparative virtues of this bark when given in substance, for I have reason to believe, that this will be found the best mode of giving it in many cases, and particularly in such as require the constitutional effects of tonics. When perfectly dry, the bark is exceedingly brittle, and is easily pulverised; and I have lately been informed, that a

quantity of it is now in the possession of Doctor Sandford, for the purpose of being ground like the Peruvian bark, for the preparation of which he is so highly celebrated.

Medical history. So many of our indigenous vegetables have of late been added to the long list of tonics and bitters, that the new substances of this character have ceased to be regarded with much interest. The well established reputation of the various species of Cinchona, of the Quassia and Columba, commend them to general use, and so long as these can be easily procured, there is little inducement to experiment with substitutes of doubtful efficacy. Indeed, it must be acknowledged that among the plants whose virtues have been satisfactorily investigated, none have been recently found superior to those just mentioned; and few which, when these are indicated, it is justifiable to use in their stead. But still, while a tree of our forests, or a shrub of our fields, remains unexamined, who knows but we are ignorant of the most valuable of remedies? and while the resources of our shops depend on the precarious state of foreign commerce, who will say that the resources of our country ought not to be thoroughly explored?—Besides, how often do we find in one medicine, the prominent qualities of which are inferior to many others of the same general character, peculiar virtues which render it an eligible remedy in cases where the others are forbidden? for instance experience, has proved that Peruvian bark and Aristolochia serpentaria, are both tonics, and that under some circumstances they may be prescribed indifferently, or in combination; but experience has also proved that each has properties peculiar to itself, and that in some states of disease, or conditions of the system, the one may be advantageously prescribed, when the other would be inefficient or injurious.

Notwithstanding the substance under consideration seems to have escaped the notice of Drs. Bigelow and Barton, or to have been thought by them unworthy of a place in their valu-

able collections, it certainly has more merit as a medicine, than either of the species of dogwood, which they have described; and I am decidedly of opinion, that it is not inferior as a tonic to any vegetable of our own soil hitherto investigated.

I commenced using the *Circinata* about two years ago, from the recommendation of Professor Ives, of New-Haven. He informed me that it was once given as a nostrum, to a patient of his, labouring under a protracted disease of the stomach and bowels; for which, he in consultation with Doctor Munson senior, had long been prescribing; and from its superior efficacy to other means employed, he was induced to offer a reward for a specimen of the plant. From that time, which was about twelve years ago, he had been in the constant habit of prescribing it in cases indicating the use of vegetable tonics, and with such satisfactory results, that for a number of years past he had used more of it than he had of the Peruvian bark; and I was lately informed by one of the most respectable druggists in New-Haven, that the bark of the *Circinata* was now in such general use in New-Haven county, that more of it was called for, than of the Jesuits bark.

My experience in the use of this article, has been sufficient to persuade me that it is a pleasant and a powerful tonic; and that there are cases in which it is preferable to any other vegetable belonging to this class of medicines. I know of no article which it so much resembles in its chemical and medicinal properties, as the *Cinchona cordifolia*, or orange coloured Peruvian bark. The *Circinata* is, however, more astringent than either of the species of *cinchona*. It requires further observation to determine whether it is equally efficacious in the cure of intermitted fevers, or in short whether it is equally energetic as a tonic; but if it should prove to be inferior in this respect, it has in some others a decided preference to the *cinchona*. It is more aromatic and pleasant to the taste; it does not so frequently derange the stomach and bowels; it may be procured for one sixteenth of the

price, and from the facility of gathering it, it may always be obtained free from adulteration.

I have prescribed the *Cortex Circinata* in dysentery, after the bowels had been freely evacuated, and the febrile symptoms subsided ; in protracted cases of diarrhœa, and in dyspepsia, accompanied with an enfeebled state of the stomach and bowels, with general debility. In diseases of this character, it is unquestionably a valuable remedy, and equal if not superior to any other tonic. Professor Ives, of New-Haven, speaks highly of its efficacy in cholera infantum. In this disease I have never used it, but from the aromatic, astringent, and tonic virtues of the *infusion* of the bark, it would seem particularly applicable to the secondary stage of this complaint. From all I have learned of its remedial powers, and of its chemical properties, as developed in the foregoing analysis, I conclude that the *Circinata* is a very active tonic, a moderate astringent, and a pleasant aromatic. After these general principles, it is deemed unnecessary to detail the various diseases in which it may be advantageously administered. It will readily be inferred, that its use is forbidden in diseases accompanied with febrile excitement, and that in most instances, it will be proper that it should be preceded by evacuants.

Economical use. From the bright indigo colour, which the decoction of the *Circinata* assumed by union with a solution of the sulphate of iron, and the brilliant and copious precipitate which ensued when the iron was added to the point of saturation, I was led to make some experiments, with a view to ascertain the nature and permanency of its colouring matter. Several trials were made with the salts of copper, of alum, tin, lead, and of iron. The results showed that iron was the best mordant, and that with this, the decoction or infusion formed a black dye, superior to that prepared with oak, sumach, or logwood, and but little inferior to that made with the Aleppo galls.

I gave a quantity of the bark to a manufacturer of ink powder, with the request that he would make trial of it and give me the results in writing. It is stated in his reply, that the Circinata contains three times as much colouring matter as the same quantity of logwood, that it is equal to the white galls, but inferior to the blue galls of Aleppo.

Dr. Lewis, who perhaps devoted more attention to the subject than any other writer has done, came to the conclusion that the best ink was that prepared by uniting one part of powdered sulphate of iron, one part of gum arabic, one part of logwood, three parts of powdered galls, and sixteen parts of white wine, vinegar, or water. I prepared a quantity of ink, agreeable to this recipe, excepting that four parts of the bark of the Circinata were substituted for the galls and logwood. As I have used it but a few weeks, I can say nothing of its durability, but at the present time it is not inferior to that made with the logwood and galls, as directed by Doctor Lewis.

An account of the Dysentery, as it appeared in Hebron, Washington County, in the summer and autumn of 1820, by A. H. Cogswell, read before the Washington County Medical Society, July 3, 1821,

WHEN we consider what vast multitudes of our citizens are suddenly destroyed by the desolating epidemics of our country in defiance to the most vigorous efforts of our most eminent physicians, and see how feeble and ineffectual the greatest skill is, in arresting their progress, or controuling their fatality, we must be convinced of the importance of any facts which may shed any light on their history. The dysentery

is by no means the least formidable of this class of diseases, and its frequent occurrence and fatal character, loudly call upon physicians to turn their attention to its investigation.— The science of medicine has within a few years received many improvements, but is yet in its infancy, and much, very much, remains to be done before it can even approximate to perfection; it therefore becomes the duty of every medical practitioner, to devote his attention and talents to the promotion of this important object; and when any important observations are made, they ought to be communicated to the public: if it be nothing more than a hint, others may improve it to the lasting benefit of the science.

Impressed with its importance, and having witnessed its alarming and fatal effects, the writer has undertaken with much diffidence, to communicate some facts which he considers important concerning dysentery, as it appeared in Hebron, in the summer and autumn of 1820, as well as some observations suggested by those facts.

When a disease prevails generally in one part of the country while others are free from it, and where it attacks several of the same family in succession, or at the same time, it is generally supposed to be contagious: but if this were always received as evidence of contagion, we should have a much greater number of this class of diseases, than the most sanguine of our contagionists would claim.

As this subject has lately excited much controversy in the medical world, and been treated by able men on both sides, the writer forbears to enter upon it; he would only remark, that many who are exposed to the dysentery do not receive it, and as many who were never thus exposed, are its victims.

Its prevalence in Hebron may be accounted for from local causes without resorting to contagion. The face of the country although very uneven and hilly, abounds in swamps, especially in that part of the town where the disease raged with most violence. The excessive heat and

drought of the season, partially or entirely dried them up, and the putrid exhalations arising from them were very perceptible to the smell on passing by.

In the same part of the town is a large mill-dam, built upon the low banks of a small creek, and setting back, when full, more than a mile of extent of water, bordered by marshy ground. This pond was nearly dry this season, leaving a large portion of ground covered with animal and vegetable matter, exposed to the heat of the sun, in a state of putrefaction. Near the house where the first case appeared, had formerly been a small pond, which had been drained the preceding year.

I shall not attempt to explain how putrid exhalations or marsh miasmata act on the animal system in producing diseases; but the fact is established beyond a doubt, that these are powerful agents in their production. Considering the circumstances that have been mentioned, it is not difficult to account for the rise and progress of the dysentery in Hebron; and that it was the genuine dysentery described by medical writers, is evident from the following symptoms by which it was characterised: very frequent stools, generally small in quantity composed of bloody mucus, sometimes, especially in the progress of the disease, of dark coloured bloody water, resembling old beef brine, containing sometimes a large amount of mucus, and intolerably fetid; severe griping pains in the bowels; violent and obstinate tenesmus; a considerable degree of fever, nausea, and vomiting; emaciation and great prostration of strength. In small children, it frequently terminated in black vomit and convulsions. Dissections showed marks of inflammation, mostly of the colon and rectum. The scybala mentioned by writers, were observed in but one instance.

This disease has been so often described, that it is deemed unnecessary to enter into a more minute and circumstantial detail of the symptoms, as there was nothing peculiar or dif-

ferent from what is generally mentioned by writers as appertaining to it: the principal object of these observations is to establish an important fact respecting its cure.

The first case that appeared, an adult, and the second a child, after the exhibition of a cathartic and diaphoretics, were treated with astringents, and both recovered. Two other cases of children that succeeded, were treated in the manner directed by the most approved writers. Emetics of ipecacuanha, and cathartics of *ol. ricini*, were administered; then ipecac. in small doses, with alkalies, &c.; but under this treatment, they sunk very fast into a state of extreme debility and emaciation: astringents and tonics were then resorted to, but in vain: it was too late, and they both died.

Several other cases succeeding, a consultation was called. On dissecting one of the bodies, and finding marks of inflammation in the colon and rectum, bleeding was advised, and astringents objected to. Bleeding was accordingly tried, with vomiting, purging, blistering and sweating. Mucilaginous, alkaline and anodyne injections, were used in some cases. Mercury, internally and externally, lime-water, salt and vinegar, warm bath, and a number of other popular remedies.

Under this treatment, all the children under 8 or 10 years of age, who were attacked with the disease, died, except one, a very mild case, who recovered rather by negative treatment than by any other means. A boy aged about 13 years, and a girl aged about twelve, died. These were the oldest victims in this part of the town. Adults recovered after lingering for a long time, and being reduced to a state of extreme debility and emaciation. The number of children who died within about two miles extent, in a neighbourhood not very thickly settled, was about twenty.

Bleeding appeared to produce no good effect, except in some cases where there was considerable febrile excitement, and then it sometimes produced a slight remission of pain. Emetics and cathartics appeared to aggravate the disease.

No difficulty was experienced in procuring an operation from cathartic medicines. They very readily passed through the alimentary canal, but frequently without procuring any increased quantity of fæces; the only evidence of their operation being the appearance of the oil in the stools. Food taken into the stomach was frequently observed to pass quickly through, unchanged. Anodyne injections sometimes slightly mitigated the pain and tenesmus for a short time—other injections aggravated the symptoms, the rectum being so tender and irritable, that the introduction of any injection whatever, was very painful, and the expulsive efforts of the intestines were so powerful and constant, that it was impossible to retain them, except for a very short time. Injections of ipecacuana, so much extolled, were found ineffectual: in short, all the usual remedies, failed in the cases of children.

Discouraged with this ill success *astringents* were resorted to. These alone, or combined with opium, when given in the commencement of the disease immediately mitigated all the symptoms and effected a speedy and permanent cure. More than twenty persons were relieved in a very short time by a preparation of vegetable astringents, without any evacuations being premised, or indeed any auxiliary medicines.

This preparation was composed of the bark of white oak (*quercus alba*,) the roots of blackberry brier, (*rubus villosus*) and yarrow, (*achilea millifolia*.) No certain proportion of each was used, but the oak and briar in the greatest quantity. For children the ingredients were boiled in milk or milk and water, and sweetened with refined sugar; the strength and dose according to the age of the patient and urgency of the symptoms. The oak and briar were probably the only essential ingredients, and perhaps either of them might have answered the purpose alone. The briar root abounds in astringency, and the leaves of the yarrow possess a bitter, and the root a pungent aromatic quality, though by boiling this quality is materially impaired.

Several children were cured by this preparation alone, who appeared to have the worst grade of the disease, and many others who we have reason to believe, would have been affected as severely as those that died; had they been treated in the same manner. None died who took this from the commencement of the disease without any evacuating medicines. One interesting case may be mentioned. A child was attacked very violently with the disease, for whom a neighbour directed and prepared the astringent medicine just mentioned; upon this the child was evidently improving, but the parents thought proper to call a physician residing out of town, whom they had been in the habit of employing. He accordingly came and remonstrated against the astringents, asserting that by stopping the discharges they would necessarily increase the fever and destroy the child; he therefore laid aside this medicine, and administered cathartics, calomel, ipecac. &c. Dr. Ingersoll (whose pupil the writer was, at that time) being informed of the circumstances, out of regard for the safety of the child, wrote to the physician and to the parent of the child, apprizing them of the danger and fatality of that mode of treatment. The physician in consequence conversed with Dr. Ingersoll on the subject, but not being convinced still continued his own method of treatment—the child soon died.

Several were cured by an astringent preparation made of gum kino, with the addition of a small quantity of rhubarb opium and carbonate of potass, in such proportions as to contain a powerful astringent, a little alkali, and a small dose of opium. The remedy was frequently given with success, several were cured without premising any evacuations. And whenever cathartics were administered, they appeared to protract the disease and aggravate the symptoms. In one case a cathartic taken by way of a preventive, appeared to excite the disease, which proved fatal.

If we strip our minds of all prejudice, lay aside the in-

fluence of a name, and rationally consider the symptoms which appear in dysentery, we must readily perceive that they indicate a mode of treatment very different from that recommended by most modern writers. The most essential and uniform symptom that we observe is, *frequent evacuations* by stool; this symptom is generally preceded by a sickness, or distressing indescribable sensation at the stomach, and pain in the bowels. The stomach and intestines become disordered, the discharge of their proper functions is interrupted: the fluids naturally secreted for digesting the food and preserving it from fermentation and putrefaction are vitiated, and no longer fit for fulfilling their proper intentions: the contents of the stomach and intestines readily ferment, become putrid, acrid, and irritating, and thus produce pain and inflammation of their coats: continually increasing in putrescency and acrimony while they remain in the intestines, they consequently become most irritating when in the rectum; which accounts for the inflammation appearing most aggravated in this part.

If we inquire concerning the first unhealthy evacuations which take place, we shall generally find that they are considerably copious; this is a fact mentioned by several authors whom we shall presently quote. The acrid contents of the intestines operate upon them as powerful cathartics, stimulating them to inordinate action, which expels their contents and leaves them entirely empty. The evacuations increasing in frequency, must consequently become small in quantity; and this circumstance so earnestly dwelt upon by most writers, has induced many to believe that there is an obstruction to the passage of the natural *fæces*. Upon this erroneous supposition we are directed by Dr. Thomas to administer purgatives every second or third day, to procure an evacuation of *natural fæces*. When an evacuation takes place every few minutes, as it does in some cases, or every hour, can we expect the stools to be co-

pious? As the appetite is destroyed, so that very little, if any food is taken into the stomach, and the intestines so irritable that every thing is quickly carried through most generally undigested, where shall we expect to find any natural *fæces*? we may administer purgatives till the very intestines themselves are expelled (as sometimes happens in some degree) without procuring any natural *fæces*, and for this simple reason; there are none in the intestines. The frequent evacuations indicate that the peristaltic motion of the intestines is morbidly increased; for it is by this motion that the intestines are evacuated: why then should we administer medicines to increase this morbid action? Another evil consequence of purgatives is that they increase the inflammation by affording an additional irritation to the intestines, and determining a greater quantity of fluids to them. They likewise increase the mucous and bloody discharges; the mucus is secreted for the purpose of defending the surface of the intestines from any acrimonious or irritating quality of their contents; therefore whenever the irritation of their coats is increased the secretion of mucus is increased. The action of the intestines is so violent and powerful in this disease that the mucus is expelled, their tender surface exposed, and their vessels bleed: cathartics affording an additional irritation and increasing their action, must increase the mucous and bloody discharges.

As far as the writer has observed, they do not, as it is said, relieve the pain and tenesmus, but rather aggravate them. The internal surface of the rectum is so extremely irritable from inflammation and sometimes excoriation, that a very small quantity of the acrid fluids, merely enough to moisten the coat of the rectum, irritates it and produces painful efforts to evacuate the offending matter. These efforts are vain, because it is impossible to evacuate every particle of it: purgatives by irritating the intestines increase the efforts, and by increasing the quantity of fluids secreted into the in-

testines, may increase the discharges, but they leave the intestines in no better condition than they were before their operation.

The fluid discharges, which take place in the course of the disease, indicate either an increased action of the exhalents, or an inaction of the absorbents of the intestines, or both; this may account for the extreme emaciation which takes place. Soon after its commencement the whole contents of the intestines are discharged, and the parietes of the abdomen appear to lie almost in contact with the spine; and dissections after death show that the intestines are always quite empty. In this condition it would be very absurd to administer purgatives, but there is the same indication for them, that there is at any previous period; for the pain griping and tenesmus continue, and the stools are of course very sparing in quantity, while the efforts are very frequent.

Upon taking a proper view of the symptoms which appear in this disease, an unprejudiced mind will readily perceive what remedies are indicated. From the symptoms it appears

1. That the healthy action of the stomach and intestines is destroyed, they are become debilitated and unable to perform their proper functions.

2. Their contents are become putrid and acrimonious.

3. Their peristaltic motion is increased.

4. From the frequency and acrimony of the discharges, inflammation has taken place in their lower part.

5. The action of their exhalents is increased, and that of their absorbents diminished.

What can be more admirably adapted to this condition than astringents? They have a tonic effect; they restore strength and healthy action to the stomach and intestines; they check the inordinate action of the exhalents, and increase the diminished action of the absorbents.

They are likewise the most powerful antiseptics that we possess. They entirely prevent the putrefaction of animal substances, and correct it when it is already begun ; and they diminish the peristaltic motion of the intestines, and lessen the too frequent evacuations ; thus removing the causes of the inflammation. Astringents have likewise a specific power of removing inflammation, and are frequently used for this purpose, especially when it depends on a laxity or debility of the vessels, as it evidently does in this case. By contracting the muscular fibres, they diminish the capacity of the blood vessels, and remove and prevent the increased determination of blood to the part, by restoring tone and firmness to the vessels previously debilitated.

Opium, as might be expected, is a very useful medicine in this disease, as it relieves the pain, allays the great irritation, and diminishes inordinate action. Some practitioners speak favourably of the use of this remedy in this disease, while others declare against it, for fear, forsooth, of its producing costiveness. Dr. Clarke, speaking of the use of bark, in dysentery, says, "in several cases, the bowels were so irritable, that, notwithstanding the use of opiates, the medicine was speedily carried off by stool, and the patients, in a manner half corrupted, fell victims to the disease." Does this look like danger of opium producing costiveness ? Assalini, on the plague, dysentery, &c. speaking of dysentery, says, "Citizen, Desgenettes, and Larray, chief officers on the medical staff of the army of the east, and all my colleagues have acknowledged in the treatment of this disease, the sovereign powers of opium, which administered at a proper period, constantly produced the best effects."

Many writers imagine, that, by stopping the discharges, the fever and inflammation will be increased, but the contrary appears to be the fact ; the fever appears to depend upon the local disease and irritation of the intestines, and when these are removed it will naturally subside. When the

disease has been of long standing and become habitual, it may be dangerous to stop the discharges suddenly, but in an early stage of the disease, this objection cannot apply.

The vegetable are probably better than the metallic astringents, on account of their possessing the tanning principle, which is a very powerful antiseptic. From the fact that all the ingesta are liable to run into the acetous fermentation, we might expect alkalies to be a very efficacious remedy in this disease; unassisted by astringents, they do not seem to produce very striking effects; but as there is generally acidity of the stomach, they are a proper addition to astringents and opiates.

Bleeding may be proper in some cases, where a general excitement of the arterial system is present; but the fever which attends, unless it be very high, will generally subside on removing the local irritation from the intestines; and if it should not, it demands the same treatment as a fever without a local disease of the intestines: for the danger does not seem to arise from the excess of fever or inflammation, but the patient appears to be exhausted by the excessive evacuations, and the great irritation and pain of the intestines. The two oldest persons mentioned that died in Hebron, were bled pretty largely.

In children, the most striking and agreeable effects are produced by injections of starch, some astringent decoction, and a proper quantity of tincture of opium. When such an injection can be retained, it operates very favourably. Sometimes the irritability of the rectum is so great, it will soon be expelled, and must be repeated. When the patient is very restless, and the skin hot and dry, an injection of this kind will allay the irritation, produce a quiet sleep, and a copious spontaneous perspiration is oftentimes the consequence.

From reflecting on the foregoing facts, and those mentioned by authors who have written on this disease, the writer has been led to conclude, that there are no certain marks of dis-

inction between dysentery and diarrhœa; that they are nothing more than different grades or modifications of the same disease. This conclusion will appear more evident by attending to the following facts.

1. They frequently arise from the same cause.

This is obvious from their prevailing at the same time, in the same place, as is very frequently the case in armies, and in other places. This fact will receive further confirmation in the sequel of this paper.

2. They frequently alternate with, or succeed each other, and are combined together.

Dr. Mann, in his Medical Sketches on the diseases of the American army in the late war, observes, "Typhus fever, *Dysentery*, *Diarrhœa*, and these variously combined, were the prevailing diseases, during the months of May, June, July, and August, 1813."

Dr. Cullen, speaking of dysentery, remarks, "sometimes some degree of *diarrhœa* is the first symptom," and again, "In some cases, the disease, with moderate symptoms, continues long and ends in a *diarrhœa*, sometimes accompanied with lenteric symptoms."

Dr. Lovell, in Dr. Mann's work just mentioned, reports, "the two diseases (that is, dysentery and diarrhœa) would sometimes alternate very early."

Dr. Purcell, in the same work, reports, "Typhus, *dysentery*, and *diarrhœa*, in most cases were so combined, that it was with difficulty determined which was the predominant disease."

But it may be said, this by the same rule, proves that typhus fever and dysentery are the same disease. Recollect, dysentery is generally accompanied with fever, and that fever is generally what is called typhus; and it appears likewise, that it accompanies diarrhœa also: we shall have occasion to mention this fact hereafter.

Dr. Mann further observes, "in the practice of the army, we experienced *dysenteric* symptoms, as tormenting gripes and *tenesmus* to succeed *diarrhœa*;" again, "*diarrhœa* and *lienteria*, sometimes assumed the place of *dysentery*."

Sir John Pringle, on the diseases of the army, speaking of dysentery, says, "the first stools are usually *large* and *bilious*, afterwards they are small but frequent, consisting chiefly of *mucus* mixed with *blood*. In general, though the motions are frequent, yet the evacuation is not great, except in the advanced state of the flux, when a *lientery* supervenes, in which the aliment passes through undigested."

Assalini, before quoted, speaking of dysentery, says, "our troops were first attacked with *diarrhœa*. In several individuals, the *diarrhœa* degenerated into the *white dysentery*; and it was not unusual for the patient to say, "my stomach does not now digest my food, for it passes in the same state as when I took it." They did not suffer any cholic pains, and very few made use of any remedies for its cure. The frequency of the stools did not fail to irritate and heat the extremity of the rectum.

"Besides—the fluids of perspiration which are carried to the intestines, the bile flows in a greater quantity into this canal, the stomach loses its strength, and the gastric juice becomes less powerful, or when scarcely secreted, flows into the intestinal tube, on account of the over increase of the peristaltic motion. This derangement of the stomach must of course produce bad digestion, and the half-digested food must give rise to the disengagement of a quantity of air. In this period of the disorder, there supervenes, in my opinion, on the irritated parts, some slight inflammations upon different spots of the intestines, and segments of the internal coat are in some points detached, when there follows the mucus and glary dejections, which many call the grease of the intestines.

"When the *diarrhœa* has arrived at this second stage, it is

then become dangerous, and requires to be treated in the manner we shall now point out. If we neglect to use the means proper for checking the progress of this disease, it very soon becomes a true bilious fever, accompanied with very *frequent stools*, requiring considerable efforts to void a quantity of *glary*, and often *bloody matter*. Several of the sick in this state, weary of following the advice of physicians, tried to arrest the course of their disorder, by eating hard boiled eggs, sprouting beans, and other remedies, considered as specific. A great weight at the stomach, burning thirst, bilious vomiting, stools of a *blackish colour*, *putrid*, and of an *insufferable stench*, were soon the consequence of this bad practice.

“After this statement, it is easy to be perceived, that I distinguish three stages of the dysentery of Egypt. The first stage, is the *simple flux*, or *diarrhæa*; the second is where it is accompanied by cholic pains, and *mucus* evacuations, and the third, where *fever* shows itself, and the evacuations become bilious, putrid, and *bloody*.”

This statement of Assalini is so directly to the purpose, that the writer could not omit inserting it at full length.

Doctor William Currie, on the diseases most prevalent in the United States, speaking of dysentery, remarks, “The stools at first are commonly *copious* and *excrementitious*, but the next day, or soon after, they become *small* in quantity and of a frothy appearance, and are attended with *gripping* and *tenesmus*.”

Cleghorn, on the diseases of minorca, says, “Dysenteries begin in three ways,

1. Sharp indigested humours flowing from the stomach, or, (what seems to be more frequently the case) an increased secretion of bile and other liquids necessary for chyfication, produce a *simple looseness*, which gradually washes off the mucus from the intestines, *erodes* their membranes, and at last brings on *severe gripes* with *bloody stools*.

2. Others are seized with horrors, rigors, and all the train of feverish symptoms which commonly attend the first attack of acute diseases, and in a short time afterwards, a *painful frequent evacuation of slime streaked with blood* ensues.

3. Others have no preceding fevers, but are seized with a twisting of the guts, pains in the bowels, &c. while others complain only of a pain about the pelvis, with a constant fruitless straining to stool, though the body is costive, or discharges nothing but bloody slime. But in whichever of these ways dysenteries begin, in process of time, the case comes to be pretty much the same; the intestines are irritated, inflamed, and ulcerated; a fever for the most part of the periodical kind comes on; the constant stimulus in the bowels diminishes the cutaneous discharges, the *flux increases*, and what is discharged is *ichorous*, and offensive to the smell, the strength decays, and death or a tedious recovery is commonly the consequence."

From these facts we see that whether the disease commences with a simple diarrhœa, with fever, or with costiveness, it soon becomes the same; and although one might need a cathartic in the commencement more than the other, yet they would eventually require the same treatment.

Clark, on diseases which prevail on long voyages &c. says, "The dysentery during the first days, frequently resembles a *simple purging*; but as soon as the mucus is washed off the bowels, the *gripes* and *tenesmus* become violent, and the *pulse is accelerated*. The stools are *small, slimy*, and often *bloody*."

This fact shews that the excitement of the arterial system is a consequence of the flux and irritation in the bowels. He proceeds, "The disease, unless its progress be prevented by proper treatment, grows daily worse, until it either proves fatal, or becomes chronic.

"The diarrhœa seems chiefly to depend on a sudden change of diet. It is very tractable, requiring moderation

in the use of vegetables and fresh meat, a dose or two of rhubarb, and an opiate at bed time, If these precautions be neglected at Bengal, in the rainy season, a *simple looseness* is apt to degenerate into the dysentery."

Other authorities might be adduced to this point, were it not deemed unnecessary.

Now in these cases quoted, if there are two different and distinct diseases, when one degenerates into the other, or one alternates with the other, who can mark the time when one terminates, and the other commences? If they are two *distinct* diseases, there must be a *distinct* line of demarkation between them.

3. Dissections of those who die of either disease, sometimes exhibit the same appearances.

Doctor Thomas states, that "Dissections of those who die of *diarrhœa* have shown that where it prevailed as a primary disease, ulceration of some portion of the intestines is usually met with, in which the inner membrane is often abraded for a considerable extent."

Dr. Lovell states, that "not only *inflammation* and *ulceration* of the *rectum*, appeared on dissection of those who died of *diarrhœa*, but the whole intestinal canal bore marks of inflammation."

Dr. Mann states, that, "when tenesmus succeeded profuse *diarrhœa* among the soldiers, states of inflammation and ulceration were demonstrated by many dissections."

We all know that these are the appearances observed on dissection of those who die of dysentery.

4. The symptoms of each disease are so similar and so blended together, that there are no diagnostics to distinguish the one from the other.

In *diarrhœa*, the most essential and uniform symptom, is frequent evacuations by stool. "The appearance of the stools is various; sometimes they are thinner than natural from a larger quantity of fluids being poured out by the ex-

halents of the intestines than common ; sometimes *slimy* ; sometimes of a dark colour, and very *foetid* ; the evacuation attended with griping.” [Thomas.

All these symptoms are very conspicuous in dysentery.— In both, the stomach is affected with nausea and vomiting. Flatulency, emaciation, and prostration of strength, take place in both.

The diagnostic symptoms by which dysentery is said to be distinguished from diarrhœa, are stated variously by different writers. A collection of them from several authors are : inflammation, fever, small and frequent evacuations of blood and mucus, hardened balls or *scybala*, griping and tenesmus. None of these, as we shall see, are characteristic.

Dr. Lovell as before quoted, observes, “after the diarrhœa had continued for some weeks or months, the mucous coat of the rectum became *inflamed*, in consequence of perpetual irritation, and finally ulceration took place, as appeared on dissection. Though the part principally affected was the rectum, in many cases the whole intestinal canal bore marks of inflammation. “In its incipient stages, diarrhœa was easily cured by evacuations, followed by opiates and astringents, but after having continued some time, it was accompanied with *severe febrile symptoms, a contracted wiry pulse, tongue perfectly dry, and covered with a dark brown or black fur, or of a dark colour, and as if glazed ; skin extremely dry and scaly.*”

Sir John Pringle, as before quoted, says, “the sure diagnostics of the dysentery, are small but frequent stools, of a slimy and frothy matter, a tenesmus and gripes. Blood mixed with the *fæces* is a common, but not an inseparable symptom, for many have all the other marks without this, at least in the beginning, and others have blood in their stools from various causes without dysentery. The other symptoms are more casual. Sometimes a violent bilious fever will terminate in the dysentery ; at other times, the previous fever is inconsi-

derable, and now and then we shall find the dysentery begin with scarce any feverishness at all. In general, the fever attending the flux is of little consequence till the disease has continued long, and the patient is exhausted, and then it is of a low and malignant kind."

Currie, as before quoted, says, "Cases of diarrhœa often occur in summer, that are not bilious. In these cases, the alvine evacuations are usually more or less mixed with *mucus* and are sometimes tinged with *blood*."

Dr. Mann observes, "the *tenesmal diarrhœa*, which destroyed many during the war, in most cases succeeded simple diarrhœa, the consequence of continued exposure to the primary cause of that complaint."

Dr. Purcell, speaking of diarrhœa, reports, "in one patient the efforts were so strong as to cause an umbilical rupture while on his stool; in two instances, inguinal hernias became scrotal, by efforts to evacuate the bowels."

From the foregoing facts, it appears that inflammation and ulceration, fever, griping, and tenesmus, mucus and bloody evacuations accompany diarrhœa as well as dysentery; and that fever and bloody stools are not constant and inseparable symptoms of dysentery. Dr. Harty maintains, that simple dysentery is not accompanied with fever, but when fever occurs, it is to be considered as a complication of the disease. From all these facts it is evident, that none of these symptoms can be considered diagnostic. The only resort then is to the *scy-bala*: let us see what is known concerning these.

Dr. Mann observes, "scy-bala have been observed but *seldom* in domestic practice by myself, and *never* in hospital practice, where the disease is seen under *all its various forms*."

Dr. Gallup on the epidemics of Vermont, says, "the appearance of *scy-bala* is very rare in this country; perhaps I may have met with them in one case in a hundred. In one communication it is asserted, "that in eight year's practice,

and in more than *three hundred* cases, not a *solitary case* appeared, with or without cathartics, of the scybala."

Most writers on dysentery mention that they sometimes appear, but very few consider them as a diagnostic, and it is plain that they are not.

From the foregoing facts, it appears conclusively, that there are no symptoms or set of symptoms by which dysentery can be distinguished from diarrhœa: inflammation and fever, bloody, mucus and dark coloured evacuations, griping pains and tenesmus, are common to both. We have "diarrhœa mucosa," and "dysenteria alba," which is precisely the same disease, and "tenesmal diarrhœa;" the scybala so often mentioned, are by no means a constant symptom, and when they do appear, have no part in causing or keeping up the disease, for the same aggravated symptoms appear when they are not present, and cases in which they do appear, cannot be distinguished, before they are seen, from those cases in which they do not obtain.

Some writers have supposed obstructions in the alimentary canal to be the cause of dysentery, for which reason, the most drastic purgatives have been recommended, to overcome these obstacles. Are there any accounts of obstructions being found on dissection after death?

Some have supposed inflammation of the intestines to be the primary cause of dysentery. If so, why should dysentery differ from enteritis? Why should the same cause produce so different symptoms?

5. Diarrhœa and dysentery are cured by the same remedies.

The efficacy of astringents and opiates have already been mentioned, and it has been shown that they were indicated by the symptoms of dysentery. They are likewise the proper remedies in diarrhœa.

Evacuants may be necessary under certain circumstances in both forms of disease, especially in the commencement;

but after the disease has been of some continuance, and the patient is much exhausted, nothing can be more hurtful than purgatives; the grand object under such circumstances is to arrest the evacuations, and to restore tone and proper action to the stomach and intestines: if the disease has arisen from any acrimonious or offensive materials in the alimentary canal, the action excited by their own irritation is sufficient to expel them, if it has had time to effect this object; and afterward, there is no farther need of more than ordinary evacuations.

This disease, like many others, may assume a variety of forms, and the symptoms may vary at different times from various causes, but there is no propriety in considering every symptom, or every different combination of symptoms, as a distinct disease. If we were to do this, a patient might be said at one time to have one disease, and within a few minutes another; one evacuation might be mucus, and the disease therefore called "*dysenteria alba*," or "*diarrhœa mucosa*," just as you please; the next evacuation might, from some cause, be tinged with blood, and the disease then called bloody flux; the next evacuation might, from some cause, contain a considerable quantity of bile, and the disease be denominated "*diarrhœa biliosa*;" or, if the patient, as might be the case, should happen to vomit and eject a quantity of bile, the disease might be named "*cholera morbus*." If the patient should take some food, and the stomach be able to digest it, when that should pass off the disease might be called "*diarrhœa crapulosa*;" if the stomach should be unable to digest the food, it would pass undigested, and then the disease might be called "*lienteria*," and so on *usque ad libitum*, and as several of these different appearances may take place within a short time, the absurdity of these distinctions is too evident to require any further remarks.

The cholera infantum, as described by Doctor Rush, and known in many places by the name of "the summer com-

plaint," is nothing more nor less than the dysentery. By carefully examining his description, the reader will perceive that it is a very accurate portrait of dysentery as it appears in children. Vomiting is not an unusual symptom in dysentery, especially in children ; and from the ejections being sometimes bilious, the disease has acquired the name of cholera.

If the conclusion is just, that there is no certain distinction between dysentery and diarrhœa, but that they are properly modifications of the same disease ; what becomes of the contagious attribute of dysentery, unless we allow diarrhœa to be contagious also ?



TOXICOLOGICAL SYNOPSIS.*

ARSENIC.

ARSENIOUS ACID, OR WHITE ARSENIC.—ORPIMENT, OR YELLOW ARSENIC.—REALGAR, OR RED ARSENIC.

Symptoms.—An austere taste, fetid breath, ptyalism, constriction of the pharynx and œsophagus, hiccup, nausea, and vomiting of brown or bloody matter ; anxiety and faintings, heat and violent pain at the pit of the stomach, stools black and offensive, pulse small, frequent and irregular ; palpitations ; great thirst and burning heat ; breathing difficult ; urine scanty, red, and bloody ; delirium, convulsions of an epileptic character, and death.

Treatment.—Vomiting to be excited or encouraged by large draughts of sugared water, linseed tea, or other emollient fluids. Lime water, or chalk and water, may be drank

* This paper was lately published, in London by a member of the Royal College of Surgeons, in the form of a chart, wherein at one view might be seen the names of the various poisons, their symptoms, treatment, and tests : its usefulness as a manual, or remembrancer, it is hoped will preclude the necessity of an apology for inserting it.

freely if the arsenic has been taken *in solution*. Fat, oil, vinegar, charcoal powder, alkaline sulphurets, and vegetable decoctions, which have been recommended, are worse than useless. Inflammatory symptoms are to be combated by bleeding from the arm, and by leeches; fomentations, frequent emollient glysters, and other remedies as symptoms may demand. No *specific* antidote yet known.

Tests.—The ammoniacal sulphate of copper added to solutions of arsenic, produces for the most part a beautiful grass green precipitate, but if dissolved in wine the precipitate would be blackish blue.

Sulphureted hydrogen precipitates arsenic from tea, of a beautiful yellow colour.

From albumen, gelatine, and bile containing arsenic in solution; nitrate of silver produces a white precipitate.

The ammoniaco-nitrate of silver produces a yellow precipitate, soluble in nitric acid and ammonia; but the presence of muriates, or phosphates, or their acids, renders this test fallacious.

The most certain test is the reduction of the metal, by calcining the dried suspected matter in a glass tube, with equal parts of charcoal and potash, when, if arsenic be present in very minute quantity, it will be sublimed and adhere to the inside of the tube, in the form of a shining metallic coating.

ANTIMONY.

TARTARISED ANTIMONY, OR EMETIC TARTAR.—MURIATE OF ANTIMONY, OR BUTTER OF ANTIMONY.—VITRIFIED OXYD, OR GLASS OF ANTIMONY.

Symptoms.—Similar to those occasioned by acids, with abundant and obstinate vomitings, copious stools, constriction of the throat, cramps, symptoms of intoxication, and prostration of strength.

Treatment.—Vomiting to be excited by tickling the throat with a feather or the finger, and by large draughts of mild fluids ; or *allayed* by opium, according to the previous effect of the poison. The best antidotes are, decoctions of astringent vegetables, such as oak or willow bark, or gall nuts, strong tea, &c.

Tests.—Tartarised antimony is precipitated from its solution, of an orange or deep brownish red colour, by sulphuretted hydrogen and the hydro-sulphurets ; white, by sulphuric acid, alkalies, lime, and barytes waters. Alkaline and earthly *neutral* salts do not affect it, but salts with excess of acid do. Infusion of galls occasions a copious whitish yellow precipitate.

The muriate is a dark heavy fluid, to which if water be added a white precipitate is formed.

The oxyd is soluble in muriatic acid, forming the muriate.

All the preparations of antimony are readily reduced to the metallic state by calcination with charcoal and potash.

BISMUTH.

THE NITRATE.—THE OXYD, OR FLAKE WHITE, OR FACE POWDER.

Symptoms.—Similar to those of other corrosive poisons, with great heat in the chest and very difficult breathing.

Treatment.—No specific antidote known. Milk and mild mucilaginous fluids to be drank plentifully to facilitate vomiting, and purgatives should be given.

Tests.—The nitrate boiled with distilled water is decomposed ; part being precipitated as a *sub-nitrate*, and part remaining dissolved, being a *super-nitrate* ; this solution is colourless, reddens litmus paper, and the hydro-sulphurets produce a black insoluble sulphuret of bismuth. The *sub-nitrate* is soluble with a little heat in nitric acid, from which

the alkalies precipitate the white oxyd, which is easily reduced by calcination.

COPPER.

THE SULPHATE, OR BLUE COPPERAS—THE SUB-ACETATE, OR VERDIGRIS.—FOOD COOKED IN FOUL COPPER VESSELS, AND PICKLES MADE GREEN BY COPPER.

Symptoms.—Taste acrid and coppery; tongue dry and parched; constriction of the throat and coppery eructations; severe vomitings, or fruitless efforts to vomit; dragging at the stomach, dreadful cholic; frequent black bloody stools, with tenesmus; abdomen distended, pulse small, hard, and quick; syncope, great thirst, and anxiety; cold sweats, scanty urine, cephalalgia, vertigo, cramps, convulsions, death.

Treatment.—Large draughts of milk and water to encourage vomiting. Whites of eggs stirred up with water and taken freely. Inflammatory consequences to be subdued on general principles, and the nervous symptoms by anodynes and antispasmodics.

Sugar is *not* a specific antidote.

Tests.—The salts of copper are mostly of a bright green or blue colour, and are easily reduced by charcoal at an elevated temperature. The sulphate is partly decomposed by alkalies and alkaline earths. Potash precipitates a *sub-sulphate* of a green colour from it.

Ammonia added to a solution of any cupreous salt, gives a blue or greenish precipitate, according to the quality; but if added in excess, it re-dissolves the precipitate, and forms a deep blue transparent solution.

GOLD.

THE MURIATE.—FULMINATING GOLD.

Symptoms.—Probably like those of other corrosive poisons, but not known.

Treatment.—No specific antidote known, but vomiting should be excited or encouraged by large draughts of warm mucilaginous fluids.

Tests.—Muriate of gold is decomposed by nitrate of silver. A muriate of silver is precipitated of a reddish brown colour, owing perhaps to some oxyd of gold being carried down with it. Ammonia added to the precipitate dissolves all the muriate of silver, and leaves the oxyd of gold of a beautiful canary yellow colour.

SILVER.

NITRATE, OR LUNAR CAUSTIC.

Symptoms.—Similar to those occasioned by other corrosive poisons.

Treatment.—A table spoonful of common salt to be dissolved in a pint of water, and a wine glass-full to be taken every five minutes, to decompose the poison; after which mucilaginous drinks may be given, or purgatives may be administered.

Tests.—Nitrate of silver is precipitated white by muriate of soda, yellow, by phosphate and chromate of soda; if placed on burning coals it animates them, leaving a coating of silver; calcined with charcoal and potash the silver is reduced to its metallic state.

TIN.

MURIATE, USED BY DYERS.—OXYD, OR PUTTY POWDER.

Symptoms.—Taste austere, metallic, constriction of the throat, vomitings with pain over the whole abdomen; copious stools, pulse small, hard, and frequent; convulsive movements of the extremities and face; sometimes paralytic, and mostly death.

Treatment.—Milk to be given; first in large quantities to distend the stomach and produce vomiting, and afterwards to decompose the remains of the poison.

Tests.—The muriate precipitates gold from its solution of a purple colour; it is itself precipitated of a bright yellow colour by strong tea, or alcoholic infusion of galls. Albumen and gelatin occasions a copious flocculent precipitate.

The oxyd may be volatilized by heat, is soluble in nitric acid, combines with earths by fusion, and with fixed alkalies forms enamel; it is easily reduced by calcination.

ZINC.

SULPHATE, OR WHITE VITRIOL.—OXYD.

Symptoms.—An acerb taste, a sensation of choaking, nausea and vomiting, pain in the stomach, frequent stools, difficult breathing, quickened pulse, paleness of face, coldness of the extremities; but seldom death, owing to the emetic quality of the poison.

Treatment.—Vomiting, which is the usual consequence of large doses of sulphate of zinc, to be rendered easy by draughts of warm water, and particular symptoms to be met by appropriate remedies.

Tests.—The pure sulphate is precipitated white by potash and ammonia; yellowish white by the alkaline hydro-sulphurets, and of an orange colour by the chromate of lead.

The oxyd is readily reduced by calcination with charcoal and nitre.

LEAD.

SUPER-ACETATE, OR SUGAR OF LEAD.—RED OXYD, OR RED LEAD.

—CARBONATE, OR WHITE LEAD.—WINES SWEETENED BY LEAD.

Symptoms.—When taken in large quantity, a sugary astringent metallic taste; constriction of the throat, pain in the region of the stomach, obstinate, painful, and often bloody vomitings, hiccup, convulsions, and death.

When taken in small long continued doses, it produces colica pictonum, and paralytic symptoms.

Treatment.—The same as that recommended for the salts of barytes. *Vide Alkaline Earths.*

Tests.—All the preparations of lead are easily reduced to the metallic state by calcination with charcoal.

The super-acetate dissolved in water is precipitated white by sulphuric acid; of a canary yellow colour by chromate of potash and chromic acid; these precipitates being easily reduced by calcination. The alkaline sulphurets precipitate the super-acetate of lead of a blackish colour.

MERCURY.

OXY-MURIATE, OR SUBLIMATE.—NITRIC OXYD, OR RED PRECIPITATE.—SULPHURET, OR VERMILION.

Symptoms.—Acid metallic taste, thirst, fulness, and burning at the throat; anxiety, tearing pains of the stomach and bowels; nausea and vomiting of various coloured fluids, sometimes bloody; diarrhœa and dysuria. Pulse quick, small, and hard; faintings, great debility, difficult breathing, cramp, cold sweats, insensibility, convulsions, and death.

Treatment.—Whites of eggs to be mixed with water, and one to be given every two or three minutes to promote vomiting, and to lessen the virulence of the poison. Milk in large quantities, gum water, or linseed tea, sugar and water, or water itself at about 80°. Inflammatory consequences to be anticipated, and to be subdued by the usual remedies.

Tests.—Mercurial preparations heated to redness in a glass tube with potash, are decomposed, the quicksilver being volatilized. The oxy-muriate is precipitated white by ammonia, yellow by potash, and of an orange colour by lime water; by nitrate of tin a copious dark brown precipitate is formed, and by albumen mixed with cold water, a white flocculent one.

The red nitric oxyds may be dissolved in muriatic acid, and converted into sublimate.

Vermilion is insoluble in water or muriatic acid ; but is entirely volatilized by heat.

ACIDS.

SULPHURIC, OR OIL OF VITRIOL.—NITRIC, OR AQUA FORTIS.—

MURIATIC, OR SPIRIT OF SALT.—OXALIC, OR ACID OF SUGAR.

—PHOSPHORIC.—FLUORIC.—TARTARIC.—PRUSSIC.

Symptoms.—Acid burning taste, acute pain in the throat, stomach, and bowels, frequent vomiting of bloody fluid, which effervesces with chalk or alkaline carbonates, and reddens litmus paper ; hiccup, copious stools, more or less bloody ; tenderness of the abdomen ; difficult breathing, irregular pulse, excessive thirst, drink increasing the pain, and seldom staying down ; frequent but vain efforts to make water ; cold sweats, altered countenance, convulsions, and death.

The most virulent of poisons, producing almost instant death, when applied even in small quantites to the surface of the body.

Treatment.—Mix an ounce of calcined magnesia with a quart of water, and give a glass full every two minutes. Soap, or chalk and water may be used till magnesia can be procured. Carbonated alkalies are objectionable, on account of the great extrication of gas in the stomach, and the salts formed with them are too irritating for the stomach. Vomiting is to be excited by tickling the throat. Diluents to be taken after the poison is got rid of, and the return to solid food must be very gradual. Inflammatory and other consequences to be treated by the usual remedies.

If prussic acid has been taken, emetics are to be given with as little delay as possible, and after their operation, oil of turpentine, ammonia, brandy, and other stimulants, capa-

ble of rousing the system, should be perseveringly employed with warmth, friction, and bitters.

If the vitriolic acid has been swallowed, water alone should not be given, nor should calcined magnesia with water be given; but the common carbonate of magnesia may be given freely when mixed with water. There is too much heat generated in the stomach, if the above cautions be not attended to.

Tests.—Sulphuric acid is known by its great weight, by evolving heat when mixed with water; by emitting no fumes. If barytes be added to it a sulphate is formed, which is insoluble in water or nitric acid.

Nitric acid emits orange coloured fumes upon adding copper to it, and is changed blue by it; if potash be added, a nitrate is formed, which deflagrates when thrown on burning coals. It tinges the skin yellow.

Muriatic acid emits pungent fumes; if nitrate of silver be added to it, a very white precipitate is formed of muriate of silver, soluble in ammonia, but not in nitric acid.

Oxalic acid precipitates lime and all its salts from water, the precipitate being soluble in nitric, but not in excess of oxalic acid. Exposed to heat it volatilizes, leaving but little residue; it is decomposed by sulphuric acid, becoming brown; it is dissolved by heat and nitric acid and rendered yellow; muriatic acid dissolves it with heat and decomposes it.

Phosphoric acid precipitates barytes and lime waters, the precipitate being soluble in nitric acid; it is decomposed by charcoal at a high temperature, evolving carbonic acid, and phosphorus being sublimed.

Fluoric acid exhales white vapours, not unlike those of muriatic acid; heat is evolved with a hissing noise when water is added to it; it dissolves glass.

Tartaric acid produces a precipitate from lime water, soluble in an excess of acid, and in nitric also; with potash it forms a *neutral* and a *super-salt*; it does not precipitate solution of silver, but its salts do.

Prussic acid has a strong odour of bitter almonds, and is contained in that fruit, and in the leaves of the peach and the laurel; it is soluble in alcohol, but hardly in water, and is precipitated from its solution by nitrate of silver.

ALKALIES, CAUSTIC OR CARBONATED.

POTASH.—SODA.—AMMONIA.

Symptoms.—The taste acrid, urinous, and caustic; great heat in the throat; nausea and vomiting of bloody matter, which changes syrup of violets to green, and effervesces with acids if the carbonated form of the alkali has been taken; copious stools, acute pain of the stomach, colic, convulsions, derangement, and death.

Treatment.—Vinegar and other vegetable acids to be given largely to neutralize the poison, and the consequent symptoms to be treated on general principles.

Tests.—Alkalies have many properties in common; their solutions feel soapy to the touch, change to green, vegetable reds and blues; and yellows to brown; remain transparent when carbonic acid is added to them, which distinguishes them from solutions of the alkaline earths, barytes, strontian, and lime. Nitrate of silver is precipitated by them in form of a dark coloured oxyd, soluble in nitric acid.

Potash and soda may be distinguished from each other by evaporating their solutions to dryness; potash will become moist by absorbing water from the air, while soda will remain dry. Ammonia is known by its pungent smell.

ALKALINE EARTHS.

LIME.

BARYTES.

PURE BARYTES—CARBONATE—MURIATE.

Symptoms.—Violent vomitings, convulsions, palsy of the limbs, distressing pains in the abdomen, hiccup, alteration of the countenance, and very early death.

Treatment.—If lime has been taken, vinegar and other vegetable acids are the best antidotes.

If barytes in any of its forms has been swallowed, a weak solution of Epsom or Glauber's salt should be drank plentifully, to produce vomiting, and at the same time to decompose the poison, which it renders inert by forming an insoluble sulphate. Till the above salts can be had, large draughts of well water alone, or made slightly sour by sulphuric acid may be drank pretty freely.

Tests.—Solution of lime changes vegetable blues to green, and is precipitated white by carbonic and oxalic acid, while no change is produced on it by sulphuric acid; its salts are decomposed by the *fixed* alkalies which precipitate the lime, but not by ammonia.

Pure barytes undergoes changes similar to lime when water is added to it, and acts like it on vegetable colours; it does not effervesce with acids. Sulphuric acid, and all the sulphates added to a solution of it, produce a white precipitate, insoluble in water and nitric acid.

Carbonate of barytes is insoluble in water, but dissolves in nitric or muriatic acid, with effervescence.

Muriate of barytes dissolved in water, is not changed by pure ammonia, but its carbonate, as well as all other alkaline carbonates, throw down a white precipitate, which is carbonate of barytes.

NITRE, OR SALT PETRE.

Symptoms.—Cardialgia, nausea, painful vomiting, purging, convulsions, syncope, pulse feeble, extremities cold, with tearing pains of the stomach and bowels; difficult respiration, a kind of intoxication, and death.

Treatment.—Similar to that of arsenic, except that lime is not to be used.

Tests.—If the nitre be thrown on burning coals, it crackles,

and gives a beautiful white flame ; if powdered, and sulphuric acid be poured upon it, it gives out white vapours ; both these circumstances distinguish it from Glauber's salt. It is decomposed at a high temperature, affording oxygen gas.

MURIATE OF AMMONIA, OR SAL AMMONIAC.

Symptoms.—Excessive vomitings, with convulsions and general stiffness of the muscles, great pain in the bowels, early alteration of the features, and death.

Treatment.—Vomiting to be rendered easy by large draughts of warm sugared water, and if not occasioned by the poison, should be excited by the finger. The consequent nervous symptoms to be calmed by anodynes and antispasmodics, and inflammatory ones counteracted by the usual means.

Tests.—Muriate of ammonia is soon volatilized if placed on hot coals ; if rubbed with quick lime, it gives out the odour of hartshorn. A solution of it in water is precipitated white, upon the addition of nitrate of silver.

PHOSPHORUS.

Symptoms.—Occasions symptoms similar to those of concentrated acids.

Treatment.—No specific antidote is known, but vomiting should be excited by large draughts of water, and oil or fatty substances should be avoided.

Tests.—If phosphorus, or the rejected contents of the stomach after it has been taken, be boiled in a retort, having its beak under water, with a solution of caustic potash, phosphorated hydrogen gas is formed, which explodes with a green flame as soon as it reaches the surface of the water.

GLASS, OR ENAMEL.

Symptoms.—If taken in very coarse powder, it produces irritation and inflammation of the bowels.

Treatment.—Large quantities of crumb of bread should be eaten, to envelope the particles. An emetic of sulphate of zinc should then be given, and vomiting promoted by demulcent drinks.

ALCOHOL.

BRANDY—WINES, AND ALL SPIRITUOUS LIQUORS.

Symptoms.—Intoxication, and when taken very freely, complete insensibility, with apoplexy or paralysis of one side; the countenance is swollen, and of a dark red colour; the breathing is difficult, and often stertorous, with a peculiar puffing out of the lips; the breath smells of liquors, which will distinguish the symptoms from those of spontaneous apoplexy.

Treatment.—A powerful emetic of white vitrol, or tartar emetic, should be got into the stomach as soon as possible, and if the person has lost the power of swallowing, a flexible catheter or tube should be the means of conveying it there. The vomiting should be encouraged as much as possible with warm water, and large and active glysters of salt and water should be thrown up. The patient should be placed erect, and if the countenance and other appearances are not improved after these means have been used, the jugular vein may be opened, and cold wet cloths applied to the head, particularly if the body is hotter than natural. If the extremities become cold, warmth and friction should be perseveringly used.

IRRITATING POISONS.

Aconitum napellus, (Monks-hood)—*Anemone pulsatilla*, (Pasque Flower)—*Arum maculatum*, (Wake Robin)—*Bryonia dioica*, (Bryony)—*Callicocca ipecacuana*, (Ipecacuana)—*Chelidonium majus*, (Celandine)—*Clematis vitalba*, (Virgins Bower)—*Colchicum autumnale*, (Meadow Saffron)—*Convolvulus scamonea*, (Scammony)—*Cucumis colocynthis*,

(Bitter Apple)---*Daphne mezereum*, (Mezereon)—*Daphne laureola*, (Spurge Laurel)—*Delphinium staphasagia*, (Stavesacre)—*Euphorbia officinarum*, (Euphorbium)—*Fritillaria imperialis*, (Crown Imperial)—*Gratiola officinalis*, (Hedge Hyssop)—*Hydrocotyle vulgaris*, (Marsh Pennywort)—*Helleborus niger*, (Black Hellebore)—*Helleborus fœtidus*, (Bears Foot)—*Juniperus sabina*, (Savine)—*Lobelia syphilitica*, (Cardinal Flower)—*Momordica elaterium*, (Elaterium)—*Narcissus pseudo-narcissus*, (Daffodil)—*Œnanthe crocata*, (Hemlock Dropwort)—*Phellandrium aquaticum*, (Water Hemlock)—*Pedicularis palustris*, (Lousewort)—*Ranunculus acris*, (Butter Cups)—*Ranunculus sceleratus*, (Water Crowfoot)—*Ranunculus flammula*, (Lesser Spear Wort)—*Rhododendron corysanthemum*, (Yellow Rhododendron)—*Rhus toxicodendron*, (Poison Oak)—*Ricinus major*, (Purging Nut)—*Sedum acre*, (Wall Pepper)—*Sempervivum tectorum*, (Houseleek)—*Scilla maritima*, (Squill)—*Stalagmitis cambogoides*, (Gamboge)—*Veratrum album*, (White Hellebore)—*Viola tricolor*, (Hearts Ease).

Symptoms.—The general effects of this class of vegetable poisons, are an acrid pungent taste, with more or less of bitterness, excessive heat, great dryness of the mouth and throat, with sense of tightness in it; violent vomitings, and the efforts are continued even after the stomach is emptied; purging, with great pain in the stomach and bowels; pulse strong, frequent, and regular; breathing often quick and difficult; appearances of intoxication; the pupil of the eye frequently dilated, insensibility resembling death, the pulse becomes slow, and loses its force, and death closes the scene.

If applied externally they, many of them, produce violent inflammation of the skin, with vesications or eruptions of pustules.

Treatment.—If vomiting has been occasioned by the poison, and the efforts are still continued, they may be rendered

easier by large draughts of warm water, or thin gruel; but if symptoms of insensibility have come on without vomiting, it ought to be immediately excited by the sulphate of zinc, or some other active emetic substance, and after its operation a sharp purgative should be given. After as much as possible of the poison is got rid of, a very strong infusion of coffee, or vinegar diluted with water, may be given with advantage. Camphor mixture with æther may be taken frequently, and if insensibility be considerable, warmth, frictions, and blisters, may be employed. If inflammation or other dangerous consequences have been induced, they are to be treated upon general principles.

The fruit of the *Fewillea Cordifolia* has been lately recommended as a powerful antidote against vegetable poisons; it is to be used in as recent a state as possible.

NARCOTIC POISONS.

Actea spicata, (Bane berries)—*Æthusa cynapium*, (Fools Parsley)—*Aristolochia clematitia*, (Birth Wort)—*Atropa belladonna*, (Deadly Night Shade)—*Cicuta virosa*, (Water Hemlock)—*Conium maculatum*, (Hemlock)—*Datura stramonium*, (Thorn Apple)—*Digitalis purpurea*, (Fox Glove)—*Ervum ervilia*, (Lentil)—*Hyosciamus niger*, (Henbane)—*Lactuca virosa*, (Strong Scented Lettuce)—*Laurus camphora*, (Camphor)—*Laurus cerasus*, (Common Laurel)—*Lolium temulentum*, (Darnel)—*Menispermum coculus*, (Coculus Indicus)—*Nicotiana tabacum*, (Tobacco)—*Papaver somniferum*, (Opium)—*Paris quadrifolia*, (Herb Paris)—*Solanum dulcamara*, (Woody Night Shade)—*Strychnos nux vomica*, (Crow Fig.)

Symptoms.—The narcotic vegetable poisons, if taken into the stomach, or applied to a wound, occasion the following effects:—Stupor, numbness, heaviness in the head, desire to vomit, slight at first, but afterwards insupportable; a sort of intoxication, stupid air, pupil of the eye dilated, furious

or lively delirium, sometimes pain, convulsions of different parts of the body, or palsy of the limbs. The pulse is variable, but at first generally strong and full; the breathing is quick, and there is great anxiety and dejection, which if not speedily relieved soon ends in death.

Treatment.—The stomach to be effectually evacuated, by giving four or five grains of tartar emetic, or from ten to twenty of the sulphate of zinc, and repeat it every quarter of an hour, till the full effect is produced. These means may be assisted by tickling the throat with a feather, or the finger. Large and strong glysters of soap dissolved in water, or of salt and gruel, should be speedily administered, to clear the bowels and assist in getting rid of the poison, and active purgatives may be given after the vomiting has ceased. When as much as possible of the poison has been expelled, the patient may drink, alternately, a tea-cup full of strong hot infusion of coffee, and vinegar diluted with water. If the drowsiness, which is sometimes extreme, and the insensibility bordering on apoplexy, be not remedied by these means, blood may be taken from the jugular vein, blisters may be applied to the neck and legs, and the attention roused by every means possible. If the heat declines, warmth and frictions must be perseveringly used. Vegetable acids are on no account to be given *before* the poison is expelled, and it is desirable that but little fluid of any kind should be given.

POISONOUS MUSHROOMS.

Agaricus muscarius, (Fly Agaric)—*Agaricus piperatus*, (Pepper Agaric)—*Agaricus necator*, (Deadly Agaric)—*Agaricus bulbosus*, (Bulbous Agaric)—*Agaricus chantarellus*, (Champignon).

Symptoms. Nausea, heat, and pain in the stomach and bowels, with vomiting and purging; thirst, convulsions, and

faintings; pulse small and frequent; delirium, dilated pupil and stupor, cold sweats and death.

Poisonous mushrooms may be distinguished from the edible ones by their botanical characters, and by the following criteria, The former grow in wet shady places, have a nauseous odour, are softer, more open and porous, have a dirty looking surface, sometimes a gaudy colour, or many very distinct hues, particularly if they have been covered with an envelope; they have soft bulbous stalks, grow rapidly, and corrupt very quickly.

Treatment.—The stomach and bowels to be first cleared by an emetic of tartarized antimony, followed by frequent doses of Glauber's or Epsom salt, and large stimulating glysters. After the poison is evacuated, æther may be administered with small quantities of brandy and water, but if inflammatory symptoms manifest themselves; such stimuli should be omitted, and other appropriate means had recourse to.

POISONOUS FISH.

Balistes monoceros, (Old Wife)—*Cancer astacus*, (Sea Lobster)—*Cancer ruricolus*, (Land Crab)—*Clupea thryssa*, (Yellow Billed Sprat)—*Coracinus fuscus major*, (Gray Snapper)—*Coracinus minor*, (Hyne)—*Coryphæna splendens*, (Dolphin)—*Mormyra*, (Blue Parrot Fish)—*Muræna major*, (Conger Eel)—*Mytilus edulis*, (Mussel)—*Ostracion globellum*, (Bottle Fish)—*Perca major*, (Barracuda)—*Perca venenosa*, (Grooper)—*Perca venenata*, (Rock Fish)—*Scomber maximus*, (King Fish)—*Scomber thynnus*, (Bonetta)—*Sparus chrysops*, (Porgie)—*Tetrodon sceleratus*, (Tunny)—*Tetrodon ocellatus*, (Blower).

Symptoms.—In an hour or two, or often in a much shorter time, after stale fish have been eaten, a weight at the stomach comes on, with slight vertigo and head-ache, with a sense of heat about the head and eyes, considerable thirst,

and often an eruption of the skin (urticaria,) and in many cases death has happened.

Treatment.—An emetic should be speedily administered, or in the absence of it, the vomiting may be excited by tickling the throat with the finger, and taking large draughts of warm water. After full vomiting, an active purgative should be given, to remove any of the noxious matter that may have found its way into the intestines. Vinegar and water may be drank after the above remedies have operated, and the body may be sponged with the same. Water made very sweet with sugar, to which æther may be added, may be drank freely as a corrective, and a very weak solution of alkali has been recommended, to obviate the effects of the poison. If spasm ensue, after evacuations, laudanum, in considerable doses, is necessary. If inflammation should occur, the usual means of removing it must be employed.

POISONOUS SERPENTS.

Coluber berus, (Viper)—*Coluber prester*, (Black Viper)—*Coluber naja*, *Crotalus horridus*, and *Cobra de capello*, (Rattlesnake)—*Coluber carinatus*—Gedi Paragoodoo—Ratuka Rekula Poda—Rodroo Pam.

Symptoms.—A sharp pain in the wounded part, which soon extends over the limb or body; great swelling, at first hard and pale, then reddish, livid, and gangrenous in appearance; faintings, vomitings, convulsions, and sometimes jaundice; pulse small, frequent, and irregular, breathing difficult, cold sweats, the sight fails, and the intellectual faculties are deranged. Inflammation, and often extensive suppuration and gangrene, followed by death.

Treatment.—A moderately tight ligature to be applied above the bites, and the wound left to bleed after being well washed with warm water; the actual cautery, lunar caustic, or butter of antimony, to be then applied freely to it, and af-

terwards covered with lint, dipped in equal parts of olive oil and spirit of hartshorn. The ligature to be removed if the inflammation be considerable. Warm diluting drinks, and small doses of ammonia or hartshorn to cause perspiration; to be well covered in bed, and a little warm wine given occasionally. If gangrene be threatened, wine may be given more freely, and the bark should be had recourse to. Arsenic, the principal ingredient in the Tanjore Pill, has been strongly recommended.

CANTHARIDES.

SPANISH, OR BLISTERING FLY.

Symptoms.—Nauseous odour of the breath, acrid taste, burning heat in the throat, stomach and belly, frequent vomitings, often bloody, with copious bloody stools; excruciating pain in the stomach; painful and obstinate priapism, with heat in the bladder, and strangury or retention of urine; frightful convulsions, delirium, and death.

Treatment.—Vomiting to be excited by drinking sweet oil, sugar and water, milk, or linseed tea very freely. Emollient glysters should be administered, and if symptoms of inflammation of the stomach, kidney, or bladder, supervene, they must be subdued by appropriate treatment.

Camphor dissolved in oil may be rubbed over the belly, and on the thighs.

VENOMOUS INSECTS.

Tarantula.—Scorpio, (Scorpion)—*Vespa crabro*, (Hornet)---

Vespa vulgaris, (Wasp)—*Apis mellifica*, (Bee)—*Culex pipiens*, (Gnat)—*Oestrus bovis*, (Gad Fly).

Symptoms.—In general the sting of these insects occasion only a slight degree of pain and swelling; but occasionally the symptoms are more violent, and sickness and fever are produced by the intensity of the pain.

Treatment.—Hartshorn and oil may be rubbed on the affected part, and a piece of rag moistened in the same, or in salt and water, may be kept upon it till the pain is removed. A few drops of hartshorn may be given frequently in a little water, and a glass or two of wine may be taken. The sting may in general be removed by making strong pressure over it with the barrel of a small watch key.

SALIVA OF THE RABID DOG.

Symptoms.—At an uncertain interval after the bite, generally however between the twentieth day and three or four months, pain or uneasiness occurs in the bitten part, though the wound may have been long healed. Anxiety, uneasiness, languor, spasms, horror, disturbed sleep, difficult respiration succeed, and are soon very much increased; violent convulsions affect the whole body, hideously distorting the muscles of the face; the eyes are red and protruded, the tongue swells, and often hangs out, and viscid saliva flows from the mouth; there is pain in the stomach, with bilious vomitings, a horror of fluids, and impossibility of drinking them. All these symptoms are aggravated till the sufferer is relieved by death.

Treatment.—Hydrophobia is more easily prevented than cured, indeed it is doubtful if it ever has been cured. Mercury, arsenic, opium, musk, camphor, acids, wine, vegetable and mineral alkali, oil, various herbs, and many other remedies, whose effects are quite opposite, have been employed, but none can be relied on. Large blood-lettings, the warm and cold bath, and almost every other remedial agent, have been tried without success.

The bitten part should be completely cut out, even after it has healed, if the symptoms have not yet come on; the part should then be immersed in warm water, or washed with it as long as it will bleed, and after the most persevering ab-

lution, caustic should be applied to every part of the surface, and then the wound covered with a poultice, and suffered to heal by granulations.

No milder discipline can ensure safety.

REVIEW.

Practical observations in MIDWIFERY, with a selection of cases, part 1st, by JOHN RAMSBOTHAM, M. D., Lecturer on Midwifery at the London Hospital, and one of the Physician Accoucheurs to the Lying-in Charity, for the delivering poor married women at their own habitations. 8vo. pp. 422. Lond. 1821.

Nullius addictus jurare in verba magistri; in plain English, let every man speak for himself. We are sorry that we are obliged to take this text, in commencing our review of this book, and more sorry to be obliged to review it at all; but the law of necessity grants no indulgences, and admits of no dispensations; for, to be candid with the reader, we have been so indiscreet as to give our opinion of Doctor Ramsbotham's work, before we had an opportunity of reading any of the remarks to which it has given occasion, in the various public journals of the day. It is unfortunate, we confess; but we must get out of the difficulty in which our imprudence has involved us, as well as we can, and learn in future to hold our peace, 'till persons older than ourselves, and wiser to make conditions, have given in their judgment. Our medical brethren will readily appreciate the unpleasantness of the predicament in which we are placed, when they are informed, that all reviews of the work which we have seen, whether analytical or critical, however much they may differ in interest or ability, appear to have agreed to approve the

performance, and to bespeak for it a favourable reception with the public; and we are under an obligation to publish our opinion, lest, peradventure, our silence might be considered as a tame acquiescence in the views of others, or into a want of confidence in ourselves. As we are thus situated we shall depart a little from our usual method, and, for convenience sake, imitate the conduct of a German clerical commentator, who prefers in the commencement of his discourse, to tell his hearers what his subject does not imply, in order to prepare the way for the more intelligent reception of what it does; thereby relieving him at once, of a multitude of unnecessary matters, which, in the further prosecution of his task, might distract their attention. We shall therefore, in the observations which may follow, first show very concisely what Dr. R's book is *not*, next what it *is*, and afterwards, by way of application, add some remarks as they have suggested themselves to us on its perusal.

Whoever takes up the book with the expectation of finding any extended practical applications of the principles of Midwifery, will certainly be deceived; as it appears not to have been the intention of the author, in any one instance, to extend his views beyond the sensible horizon which limits the vision of the ordinary practitioner; and his regret will probably be mixed with some small spice of vexation, when he learns, that although Dr. R's avocation as a public teacher, and his extensive experience in the matters pertaining to his subject, amply qualified him for the task, he has not thought proper to introduce any physiological or pathological opinions, either by way of text or inference, as accompaniments to his numerous catalogue of cases. He will find that the work is not of a character to serve as a guide to inexperienced, timid, and cautious accoucheurs, and in fact, that it is impossible it should be, seeing that *they* require not only cases, but illustrations of doctrines, and those, not in the forms of mere postulata, but as the results of natural, well-

arranged, and conclusive reasoning, from obvious principles ; in which this work is obviously deficient. And finally, he will have little difficulty in perceiving, that however necessary and appropriate such a work may be, in the present condition of the art, in the city and suburbs of London, it possesses few of those requisites which should recommend it to an American practitioner : the author appearing to be of that class of obstetric surgeons, whose adroitness in the use of instruments has probably given him an undue partiality for operative delivery. This much under our first head. We will now proceed to give an analysis of the work, in order that the reader may form his own judgment of its merit.

After a few short introductory remarks, the book opens with a description of the uterus, its structure, size, shape, situation, and contents when gravid, and some observations on labour pains, which are all very good, but if we except the author's opinion of its structure, contain nothing which is not already well understood. On this latter subject he thus expresses himself :

“ The uterus has commonly been considered, and, indeed, is usually described by anatomists, to be muscular in its structure.

“ This notion appears to be rather an assumption derived from the contractile powers which this viscus is known to possess, and which are supposed only to exist in muscularity, than to originate in obvious appearances. However authors may write and teachers may talk about the uterine muscles, no such structure is evident to my senses.

“ Let this viscus be examined with an impartial eye, with an unbiassed mind, either under gravidity or unimpregnated, and its muscularity, in the proper sense of the term, will I think scarcely be admitted.

“ Muscular structure consists in a congeries or bundle of fleshy fibres or filaments, connected together by cellular membrane, and appropriated to motion, either voluntary or involuntary. Now, if this definition of muscularity be correct, any structure which does not agree with it in some degree, must be other than muscular. Is there, I would beg to ask, any distinct set, or are there any distinct sets of muscular fibres connected by cellular membrane, severally perceptible throughout the whole or any part of

the uterine parietes? Or is such a distribution of muscular structure evidently visible in its composition, as appears capable of producing effects equal to those of uterine contraction under the active state of labour? Does the human body offer any instance of muscular structure being for such a length of time perfectly quiescent; of its assuming and acquiring a degree of growth and evolution similar to that of the uterus under a state of impregnation; and after the performance of certain actions resuming its pristine state and appearance without any obvious alteration? If satisfactory answers cannot be given in the affirmative to questions like these, the uterine structure ought not, in my opinion, to be called or considered muscular. It is true, that in a longitudinal section of the unimpregnated uterus, artfully made, a concentric appearance of fibrous texture is discernable, but it is in no wise similar to a division of muscular fibre; indeed, it is not similar to the section of any other structure in the human body; it bears rather the resemblance of a cut made into a half-tanned hide, being equally firm, dense, and compact. A fibrous structure is more observable about the openings of the Fallopian tubes, than in any other part of the internal surface of the uterus: but this appearance is so completely local and circumscribed, that if viewed in the light of muscularity, it cannot be supposed capable of influencing the action of the general parietes: it must be confined to the uterine extremities of the tubes alone: it can therefore deserve little notice in the consideration of the active powers of the uterus.

“Let a virgin uterus about the age of twelve or fourteen years, before any of its functions have commenced, be compared with one of a woman of the age of fifty or sixty years, who has borne many children, so that its contractile efforts have been repeatedly exerted, but to whose economy it has now become a useless viscus. Do we, on such comparison, observe the difference in appearance and structure, which such efforts if muscular would indelibly have left behind them? The latter may perhaps be found somewhat larger in size, and its opening into the vagina more flaccid; otherwise its external appearance, and even a division of its substance offers little perceptible difference. To this add, that an excised portion of the impregnated uterus feels soft and flabby, and is readily extensible between the fingers.

“Some analogy of action has been supposed to exist between the hollow muscular structures of the human body, the urinary bladder for instance, and the gravid uterus; and the action of the former has been adduced to elucidate that of the latter viscus. In the bladder, muscularity equal to all the effects produced, is evident to the eye, particularly under some diseased states of the organ; if it were equally visible in the uterus, no difference of opinion could possibly exist: every one would be agreed on that point.

The thinness of the vesical parietes readily allows the bladder to be distended far beyond its natural size by inflation ; but the thickness of the impregnated uterus, and the degree of resistance it possesses, prevents a similar effect

“ That the uterus, under a state of gravidity does possess strong powers of action, by which its parietes are reduced within a smaller bulk, and by which the capacity of its cavity is diminished to an extent unequalled by any other organ of the human body, is a fact too obvious to be denied ; but that these effects are connected with, and dependant upon muscularity, appears to me a point rather assumed than satisfactorily proved : and certainly the examination of the uterus in the different classes of brute animals, throws no light on the doctrine of muscularity.

“ Let us contrast uterine action, which is independant of the will, therefore involuntary, with the action of the involuntary muscles of the body, and we cannot but remark a sensible difference between the two. Take for instance the action of the heart :—It consists in one continued series of quickly performed alternate contraction and relaxation, by which the blood is propelled from, and received into this vigorous organ, without intermission during life. Uterine action also partakes of alternations of contraction and relaxation, but they are of a stronger, of a more active, and more irregular description. The action of the heart under a state of health, is performed almost without a sense of consciousness, at least without painful sensation ; that of the uterus is always accompanied with more or less pain. The action of the heart is constant and uniform ; that of the uterus only occasional, under peculiar circumstances. But I may be asked if the uterine structure be not muscular, of what description is it ? Is it tendinous ? Is it cartilaginous ? Is it membranous ? Certainly not : it partakes of the properties of none of these structures. The uterus possesses a structure strictly *sui generis* ; one peculiar to the organ. The animal body has not another of a similar kind : it is therefore incapable of being elucidated by a reference to any other.

“ Uterine action is a property attached to this peculiarity of structure under a state of extension ; and I see no more difficulty in supposing it to be impressed with the power of contracting upon its temporary contents, without reference to muscularity, than that muscularity should possess the power of moving those parts to which its several portions are affixed. We know either only in its effects.

“ I admit that uterine action appears to be more assimilated to muscular action in power and effect, than to any other in the animal body ; yet the resemblance does not approximate so closely as to allow no distinction between them : the assistance of certain muscles is also borrowed in the act of labour, so that some part of

the process is muscular. The property of contraction is only possessed by the uterus under enlargement from gravidity or disease : it is absent in the healthy unimpregnated state : it is quiescent throughout the course of pregnancy, unless excited by an adequate cause ; it is always called into action at the full period of gestation, when the uterus has reached its *achmé* of growth : it is in short the natural means by which this organ is enabled to rid itself of its contents.

“ If the muscularity of the uterus be still contended for, it must be allowed to exist under great peculiarities of structure and function.”

We are surprized that the author should have taken so much pains to prove what is of so little consequence if true, for if the ability displayed in the argument was equal to the zeal with which it is urged, it would be of no more practical consequence than whether his patient had fair hair or black, or whether her complexion was light or brown : and it appears to us, full as convenient for all ordinary purposes to call a thing by a wrong name, provided it be known by that name, as to give it no name at all. But we confess that the above reasoning has not convinced us, and indeed we should have cause to regret it, if it had, since it would not be difficult to shew, and by the same arguments precisely, that every organ in the human body to which a particular function is assigned, possesses a structure *sui generis*, and therefore to call it by any generic name is as manifestly improper, as to denominate the uterus a muscle. We apprehend, notwithstanding, the author's reasoning, that his views on this subject do not materially differ from those of the anatomists, which he oppugns, and that he would have saved himself some trouble if he had been more attentive to the precision of his language : muscle is one thing, and muscularity another, and though faciculated structure may be a condition indispensable to the former, it does not follow that it is so in the latter, and if it did we cannot see the propriety of denying its existence in the uterus, because he cannot see it. Besides, the general appearance of muscular structure, we know what muscles are from

their office, and we know that it belongs essentially to the nature of muscles to possess contractility, as their name imports ; if then we find an organ agreeing in its essential character with muscle, we have the best reason which the nature of the case admits, to believe that it is muscular : and moreover, if faciculated structure implies muscularity, it seems scarcely reasonable to deny it to the simple fibre of which such faciculi are composed. After all the argument on this subject is exhausted, the truth will be found to be, that the uterus is of muscular structure, in fact that it is a hollow muscle, peculiar in its conformation, because peculiar in its function. It is not as Dr. R. will have it, a substance *sui generis*, or without a name, but a **MUSCLE** *sui generis*, its arteries, veins and absorbents, are *sui generis* ; its appendages, ligaments, and even investing membranes are all *sui generis*, for this plain reason and no other ; they have a *sui generis* function to perform : and we might as well deny the usual denomination given to its blood vessels, nerves and lymphatics, and maintain that they are not veins, arteries, nerves and absorbents, because they do not accord in all points with these organs in other parts of the body, as to deny the claim of the uterus to be called a muscle. To the doctrine inculcated in the latter part of this extract, we will only oppose one fact, to wit, that in cases of painful menstruation, which certainly does not imply disease ; an enlargement of the uterus is frequently as obvious as any other attending symptom, and its contraction is evinced by pains precisely similar to those which are premonitory of approaching labour.

The next subject is natural labour, which Dr. R. very properly insists should be left very much to itself, the business of the accoucheur being restricted to the prevention of avoidable injury ; as his untimely and officious interference is calculated to derange the whole process, and convert what might otherwise be a safe and sufficiently speedy delivery, into one requiring instrumental assistance. The management

of the placenta under ordinary circumstances, and the conduct to be pursued under the several unpleasant conditions of its *adhesion*, *retention* and *disruption* are successively the subjects of remark more or less extended, according as they severally occasion serious present, or expected consequences, and the directions of the author are accompanied by thirty-five cases intended to be illustrative of the practice which he would recommend. The details of this part of the book are in our opinion unnecessarily minute, though necessary to be fully understood, and believing that they are already well known, we shall not trouble the reader with very copious extracts, though justice to Dr. R. requires that we should insert at least so much of his text as may become the subject of our strictures. The following paragraphs will show the manner in which he sums up his opinions of the ordinary management of the placenta :

“ That power (internal contraction) which is so favourable to the separation and exclusion of the placenta, also prevents the loss of a larger quantity of blood from the open extremities of those uterine vessels which did pass into the maternal portion of the mass, than is consistent with the woman's welfare. This effort is produced by a closure of their apertures, and by a degree of constriction throughout their entire structure by the contracting uterus. These enlarged vessels do not seem to possess an equal share of contractile effort (energy) in themselves and of themselves, as blood vessels of other parts of the body : they are indebted for that salutary property to constriction of their several parts by the lessened uterus : they cannot so far contract their own parietes, diminish their general diameters, and close their orifices, as to prevent the escape of their contents, without its assistance.”

Quere, is it not a more natural supposition, that the continuance and amount of hæmorrhage is to be attributed to the great number of bleeding vessels and the comparatively high degree of temperature to which their patulous mouths are exposed.

“ The more perfect in degree, therefore, the general state of uterine contraction is found under the hand, immediately after

the expulsion of the child, the less will be the chance of hæmorrhage: the more imperfect in degree, the greater will be the danger of hæmorrhage.

“ From this view of the mode in which the separation of the placenta is produced, and of the means which the natural powers usually apply to this important purpose, it is obvious that to a perfect state of uterine contraction, and to that alone, must we refer for security during, and after the act of labour. It not only forwards and completes the grand changes which occur during the process, but it also prevents or lessens the dangers to which every woman is exposed under the act of child-birth. The means of art ought therefore to be particularly directed to the production of this perfect state of contraction, when it is left imperfect by the natural powers. The application of the hand at the lower part of the abdomen, as before directed, with a slight degree of grasping pressure, immediately detects the ~~state~~ of the uterus at the moment; and should be resorted to, before any attempt be made to remove the placenta, or even before an examination be commenced with that intention. If the uterus be now found low in the abdomen, or in the pelvis; if it be firm, well contracted and small in bulk, the safety of the woman is pretty well assured. If on the contrary, the uterus remain high; if it be flaccid, ill contracted, and large in size, without the presence of a second child, some threatening of mischief attaches to such symptoms of which the accoucheur is warned. He is therefore prepared to take timely steps to avert the danger, and to act with promptness and energy if necessary: or he is cautioned to adopt such intermediate means, as the preservation of his character, and the ultimate safety of the patient may demand.

“ After this satisfactory information is obtained, an examination *per vaginam* is presently to be made, for the sake of enquiring in what manner the placenta is disposed of. If the mass be found by the finger protruded down into the vagina; if the insertion of the funis into its substance can be readily and distinctly felt; if the finger can trace the boundaries of the mass; if at the same time the uterus be firm and small; little doubt can remain of the complete detachment of the placenta and of its exclusion. In such a case, it may be withdrawn at pleasure by the funis.

“ But though the placenta may be thus withdrawn at pleasure, it may be a question of policy, whether it ought to be withdrawn *immediately*. On this point, different practitioners vary in their sentiments, and accordingly pursue different modes of practice. I am ready to grant that under the favourable appearances above stated, the placenta in the majority of instances, may be immediately withdrawn, without any apparent detriment to the patient; nay, we uniformly find in practice, that the sooner it is removed,

the better pleased are the patient and her friends, nevertheless I have my doubts of its propriety without uterine action, and I generally wait its return before I finally remove the placenta, that I may take advantage of its assistance.

The ordinary separation of the placenta, which occurs with the last expulsive effort, which throws off the child, though of itself insufficient to expel the secundines also, whence they are necessarily left in the uterine cavity, Dr. R. attributes to the manual extraction of the body of the child prematurely, which by the way we think a very erroneous opinion.

"But the placenta may be separated from its uterine attachment, yet may not be excluded the cavity; it may remain loose and detached within the uterus. The uterine tumour in such case, is felt above the pelvis; it occupies a considerable portion of the abdominal cavity; it possesses a greater volume and less solidity, than when it does not retain the placenta. This state of the uterus is generally produced by the manual extraction of the body and lower parts of the child during the absence of the uterine effort, after the head and shoulders are protruded. Instead of passively waiting for the active expulsion of these parts as before recommended, the operator drags them away suddenly, and as it were by main force. The uterus is therefore left under a state of imperfect or irregular contraction. The difference between the natural expulsion of the above mentioned parts, and the forcible extraction of them, with the effects thereby produced on the uterine tumour and on the separation and exclusion of the placenta, must be too obvious to every practitioner to need illustration or comment. If in this case the placenta have fallen down by its own weight, and be placed at the lower part of the uterus, the insertion of the funis may possibly by a little management be touched; but frequently it cannot be felt; the funis is lost within the uterus, and the finger is unable to reach the general mass."

Manual interference with the process of ordinary labour, in all conscience has enough to answer for, without this additional charge, which if true to the whole extent Dr. R. urges, so far from being reprehensible, is at this juncture particularly proper: this separation of the placenta is in itself no

evil, and if it was, it is not quite so clear that it is assigned to its proper cause, for it is difficult to conceive how any extractive force exerted by the accoucheur, could detach the placenta unless the child was tied back by the convolutions of the cord around some part of its body, and if this latter circumstance obtained, it is no less difficult to conceive how the child could be expelled without the separation happening.

The observations which follow, and some others of a like kind forcibly remind us of the elaborate essay of Mr. Bell on the operation of blood-letting, which has made many a modest candidate for the doctorate, in the early part of his pupilage, in the very bitterness of despondency, envy the high attainment of a surgeon barber: the one is as well calculated to intimidate the student who has never been called to perform that operation, just as much as the other, to disquiet the timid and anxious accoucheur.

“The time which thus elapses between the birth of the child and the extraction of the placenta, is an interval of uncertainty to the patient and of anxious suspense to the accoucheur; especially when he is ignorant of the mode in which the placenta is disposed of in the uterus. When that time is prolonged to an unusual period, a want of confidence is excited in the patient, and a distrust in the general management of the case arises in the minds of her friends, which require no trifling exertion of firmness to counteract and defeat. Whether it may become necessary to introduce the hand to separate and withdraw the mass, or whether it may be naturally thrown down, are questions which cannot at the present be satisfactorily answered; the accoucheur is therefore at liberty to make those consolatory assurances of the safety of his patient, which are so anxiously expected: yet he ought not to excite unnecessary alarm by the careless expression of his fears; he will have to exercise much caution and reserve in his replies to inquiries which should be conveyed in a tone of hope and confidence rather than of despair. But whatever may be his sentiments respecting her state, it is a matter of no little importance, that he do not betray visible marks of alarm in the lying-in room: they seldom fail to make a desponding impression on all parties.” And again—“The introduction of the hand into the uterus, after the birth of the child is, to use the mildest language, a harsh and severe measure; it always gives considerable pain, and cannot be practised

with impunity ; without some risk, present or future. In the introduction of the hand therefore, we ought not to be actuated by trifling motives, nor ought it to be resorted to on slight occasions : it ought merely to be considered in the light of a necessary evil, which prevents greater danger or inconvenience than it incurs. Yet, however harsh and severe in reality may be the introduction of the hand, however painful at the moment, and however hazardous its consequences, the removal of the placenta by its means, when adherent or retained (the necessity of that removal being established) is certainly preferable to the uncertain, nay dangerous mode of pulling at the funis : it is the less of the two evils. But let us suppose that the placenta still remains entirely within the uterine cavity ; that there is no tendency to uterine action ; that the uterine tumour continues high, large and flaccid ; what length of time are we justly authorised to wait before some decisive steps are taken for its removal out of the uterus ? The answer to this question involves many serious considerations. We are still presumed to be in utter ignorance of the precise mode in which the placenta is disposed of : it may be adherent partially, or more generally to the uterine surface, or it may be merely retained after its separation. In whatever state it may be found, we ought for the present to desist from active means, till more positive information is obtained respecting it, or 'till lapse of time, or some threatening symptoms more immediately determines the conduct. As long as there is no hæmorrhage or other appearance of danger, it is matter of little moment in itself, whether the placenta be allowed to remain two hours, or for a more indefinite time, within the uterine cavity ; but inasmuch as this interval is one of anxious suspense to all parties concerned : inasmuch as the present received opinion is, that the placenta ought not to be suffered to remain an unlimited length of time in the uterus without removal ; inasmuch as the character of the accoucheur is exposed to the unfavourable comments of all to whom the affair is communicated, when he thus ventures to leave it ; inasmuch as his constant presence is necessary, his patience exercised, and his time consumed, till it be removed ; and lastly, inasmuch as a time must come, when the placenta must be removed by art, under perhaps increased difficulty and danger, unless it be thrown off ; such considerations have warranted the practice of a timely removal by the hand."

We are pleased to find professional men magnifying their vocations, but even this, however commendable in itself, ought to have its limits ; we may insist upon a multitude of minor matters with so much seriousness as absolutely to ren-

der them ridiculous, and though we would not be understood to insinuate that Dr. Ramsbotham has gone to this extent, we cannot but think that his remarks are unnecessarily particular, and tend rather to destroy, than to infuse that confidence which every practitioner ought either to feel, or feign, in the lying-in room. And really we do not know any thing better suited to confound the timid physician, than to be told that a certain circumstance over which he could have no control has given rise to a question whose solution involves many serious considerations, while at the same time not one of those considerations is presented in such a light, as to determine any particular line of conduct.

The circumstances which usually follow delivery, such as collapse, afterpain, the establishment of the lochial discharge, and the secretion of milk are detailed in a concise and satisfactory manner, and we observe that the author is among the number of those who deny the agency of the lochial discharge in the production of puerperal fever; for he remarks that the suppression of it, with a tumid abdomen a few days after delivery, though a prelude to dangerous disease with febrile symptoms, are not to be considered in any other light than as a *symptom* necessarily attendant on the fever; he therefore suggests that no attention be paid to it except as such, and that nothing should be done for the purpose of obviating its supposed ill consequences. As this is a point of practice upon which medical men may reasonably differ, we are sorry that we have not room here to discuss it, more especially, as we believe that error in doctrine on this subject, is productive of more positive injury than many physicians are willing to allow: we will merely enter our dissent from the opinion of Dr. R. from a firm conviction derived from actual observation; that puerperal fever is frequently prevented, arrested and cured by means having for their immediate object the restoration of this necessary evacuation.

Adhesion of the placenta.—On this subject Dr. R. has dwelt at greater length than on almost any other which he has treated, but if we except one short paragraph from which he has not drawn any particular inference, we cannot perceive that he has made any distinction, between the adhesion which is morbid, and that which is accidental, and perhaps for practical purposes, this is not very essential, though we confess we should have been pleased to have been enabled to gather from his twenty-four accompanying cases, some general data by which we might form some favourable estimate of this untoward circumstance. Its causes in so far as Dr. R's experience has permitted him to judge, are blows, pressure, falls, and other external injuries. The following extract from his book will show the coincidence of his views with those of Dr. Denman.

“I have observed adhesion of the placenta to follow a blow, pressure, fall or other external injury on the belly, during the latter stage of pregnancy. I have also met with it in many instances, when the patient has previously suffered from a constant dull pain, especially in the night time, and which on enquiry has been referred to some part of the uterine tumour. In the former instance I suspect that the injury has been accidentally applied to the external portion of the uterus, to which the placenta has been internally attached; that it has not been so considerable as to produce separation of that mass, yet sufficient to excite the vessels of the uterine structure to an undue degree of action, and to throw out coagulating lymph, by which the placental and the uterine surfaces are morbidly united. But every blow or other external injury on the gravid uterus may not be productive of this mischief, since so extensive a space of uterine surface is free from placental attachment. In the latter instance I have been induced to think that a diseased action has been spontaneously established in the uterine vessels furnishing the placenta, or in those of the deciduous membrane connecting it to the uterus, by which similar effects are produced.—Be the assigned causes correct or not, the facts are deserving attention.”

Retention of the Placenta.—The author distinguishes three kinds, 1st. where the placenta is separated from its attach-

ment, but from a failure or suspension of uterine contraction is not expelled its cavity. 2d. Where irregular uterine action, whether the placenta be separated, or not, prevents its escape by a powerful pressure in a longitudinal direction, (Hour glass contraction.) 3d. Where the uterus suddenly contracting after the expulsion of the child, firmly embraces the placental mass, before it has had time to escape. (Globe contraction.) This case is never attended with hæmorrhage.

In the first case it is rarely necessary to do any thing, unless flooding should attend, for the uterus after a short time will recover its action, and the placenta be thrown off without difficulty : but if hæmorrhage should occur while we are waiting for its expulsion, and more especially if it is considerable, no time should be lost before we proceed to its manual extraction, which will always happily succeed if we are careful to permit (although the hand may have the placenta in its grasp) our own exertions to be anticipated by uterine contraction.

The treatment of the second case does not differ materially from the first, except that more difficulty will be experienced by the accoucheur in accomplishing his object, of which he must be aware, as well as of the necessity of proceeding in such a manner as to do no violence to the uterus.

In the third variety of retained placenta, Dr. R. has given directions for conduct, not differing much from those insisted on in the last mentioned case ; he observes that it is of more rare occurrence than either of the preceeding, which we have no doubt is true, but we cannot so easily persuade ourselves that manual assistance is so generally necessary as his remarks imply, and if it was, there can be no question of the propriety of a blood-letting from the arm, which if it did not induce a spontaneous expulsion, would certainly render the introduction of the hand much more easy, and therefore, occasion less pain to the patient.

Disruption of the placenta. The observations under this head are very judicious, and scarcely admit of any amendment, the accident is always unfortunate for the patient, though we doubt if it is usually attended with so much hazard as Dr. R. supposes.

Relaxation of the uterus after delivery, and its subsequent enlargement.—The detail of circumstances generally attending this condition of a lying-in patient, Dr. R. has given in a very clear concise and faithful manner; but when we consider the extreme danger, which accompanies it, and the tremendous responsibility laid upon the accoucheur, to put in requisition, all the wisdom he possesses, and all the experience he can borrow, in order that he may justify his conduct in the hour of serious self examination; we are really astonished that his preventive and remedial measures should present such a meagre catalogue of comparatively inefficient expedients. Grasping pressure of the uterine tumour, the mere permission to use cold applications externally, and to give acid drinks, expressed by the insignificant phrase "may be useful," the use of stimulants under certain restrictions, and the introduction of the hand, as a mean to induce uterine contraction and remove coagula, make up the whole amount of treatment which Dr. R. suggests. We hear nothing of general abdominal pressure, as calculated to prevent that state of collapse which most frequently ushers in this appalling condition; nothing of the application of ligatures, with a view to tie off and detain that vital tide, which is fast ebbing to its total exit; nothing of the exhibition of astringents either *per orem* or *per vaginam* to check that inordinate hæmorrhage, which as a passive discharge must necessarily continue, so long as there is vigour enough in the heart and arteries to propel one drop; and in fine, nothing of that ceaseless assiduity, and Argus-eyed vigilance, which knows how to seize and to convert the thousand little name less circumstances which offer, into occasions of benefit to his scarce living patient.

Of Protracted labour. The author distinguishes three kinds.

1. Lingering labours, or those merely tedious in regard to the time necessary to their completion.

2. Labours tedious by reason of some slight difficulty, but which cannot be surmounted by the unassisted efforts of the uterus.

3. Labours continued with an increased degree of difficulty, with a relative disproportion between the child's head and the pelvis. The causes conducing to protraction generally, he enumerates under three distinct heads, viz. such as oppose an undue degree of resistance of the soft parts ;—such as depend upon diminished natural energy ;—and such as are to be attributed to an improper direction or position of the child's head. These several subjects are treated at considerable length, and Dr. R. takes occasion to offer some judicious remarks on the use of opium ; the practical use to which they may be applied, is our apology for introducing them.

“ The practical knowledge of the benefits sometimes derived from the judicious exhibition of opium under paroxysms of pain, and various degrees of painful sensation, has led to the introduction of opiates in the lying-in room, under the act of labour, in which they are given for suspending or controlling those actions from which the pain arises. It appears to me that labour pains (properly so called) do form, and were intended by the great author of nature for the wisest purposes to form a constituent part of the act of childbirth ; that they are inseparably attached to it as a cause ; that they are merely an external evidence of the presence and progress of those powers by which the process is finally to be terminated, but without a due degree of activity in which, it must be prolonged ; and that they ought not generally speaking, or on the application of a general principle, to be meddled with. I am certain they ought not to be entirely suspended : I have my doubts whether, except in very rare instances, any attempt should even be made to palliate them. Pain is certainly an evil, and is universally deprecated as an evil ; it seems always highly desirable to get rid of it as soon as we can ; but labour-pain is established to bring about the happiest results. It is then one of those necessary

evils to which we must patiently submit, within reasonable bounds. Labour pains are occasioned by the resistance offered to uterine contractions, and when the soft parts readily give way, the degree of suffering is proportionably diminished ; when they offer more resistance it is prolonged and increased. Under the progress of a common natural case even attended with much pain, opiates are inadmissible. In a lingering case, under rigidity of parts, their effects are at the best uncertain ; and I do not suppose that they have any tendency to produce relaxation. In large doses they procure ease from pain, but they also bring about a cessation of uterine action, and its return is not under control or to be ensured at pleasure. When this is the case the labour is always protracted ; its regular course becomes deranged ; and the pains are uncertain in time and power. Besides full doses generally occasion headache, nausea, and an interruption of the peristaltic motion of the intestinal canal. These unpleasant effects more than counterbalance any advantages derived from temporary relief from pain. But the injurious effects of opiates are not simply confined to the retardation or disturbance of labour previous to the expulsion of the child ; they are continued to and exerted upon that uterine power, by which the placenta ought to be separated and excluded ; in default of which the placenta ought to be separated and excluded ; in default of which it is detained within the uterus, and thus flooding, and other mischief ensue, from the same source. The introduction of the hand is then required to remove the placenta, or to reproduce that effective degree of action which has been restrained. Opiates sometimes instead of allaying the pains, seem to increase their power ; this effect is however so accidental, as not to be depended upon. When given in small doses they produce less inconvenience, but they do little good. Do opiates in large or small doses produce relaxation of the soft parts ? I have not remarked such an effect. When uterine action has been prematurely and violently established, a little relief has been sometimes produced by repeated small doses at short intervals ; after which the labour has proceeded more favourably. When a truce is thus obtained, they should be discontinued. Their use should ever be directed with discretion and judgment ; because I am persuaded, it frequently does much mischief ; and I have repeatedly witnessed serious inconveniencies from it. I have several times been called upon to deliver by the forceps, when the labour has been previously interrupted by a large dose of opiate in its early stages ; to which as a cause, the interruption might be fairly attributed."

The observations on blood-letting, are very short, and for the most part very just, though we incline to think that he

trammels the remedy with too many conditions, his opinion that its relaxing efforts, are confined to the os internum alone, and does not extend to the other soft parts concerned in parturition is no doubt new to most of his readers, whether it is absolutely true, is another question, which every man's experience, can enable him to answer, we will only observe, that if it is, it offers the singular anomaly, of a general remedy circumscribed in its operation to a particular locality.

Under the 2d variety, he arranges all the different considerations which are to be taken into account, before we proceed to instrumental delivery, which is the ordinary remedy according to our author for this class of tedious labour; he remarks, that "necessity, and necessity alone, is the only justifiable plea for the use of instrumental assistance;" the various items establishing that necessity are,

1. The condition of the os uteri and soft parts.
2. The past and present degree of uterine action, with the effects it has already produced, and those it appears to be still producing.
3. The relative size, and situation of the head.
4. The length of time the head has remained in the same situation in the pelvis, without advance on the accession or continuance of pain, and without retreat on the diminution or cessation of it.
5. The lapse of time since the commencement of active labour.
6. The extent of pressure upon the soft parts, and the time they have been subjected to it.
7. The appearance of the vaginal and uterine discharges.
8. The degree of permanent pain in the uterine tumour and abdominal parietes.
9. The obvious impression made on the system by the continuance of the expulsive efforts, shown in the access of febrile symptoms, in the approach of exhaustion of the vital and animal powers, or in the attack of vomiting or rigor.

10. The age and natural constitution of the patient.
11. A feeling of confidence or of depression of mind.
12. A first or subsequent labour.
13. The previous state of health and habits of life.
14. The probability of the life or death of the child in utero.
15. The temperature of the weather at the time prevalent.

We have already extended this paper so much, as to leave little room for any of the opinions which Dr. R. has expressed under the above head; his remedy in every case was perforation of the head, which for the most part was successfully practised.

Rupture of the uterus is the last article in the book, accompanied by fourteen cases, two of which are ruptures of the bladder, and two of the vagina; they all terminated fatally.

We have thus presented the reader with as full an account of this performance as our limits would permit; and here we might have rested, if it had been merely our intention to give an abstract of the book, but believing as we do, that works of this character, even if they were multiplied one hundred fold, would not half so well serve the cause of science, as the individual interests of the practitioner, who happens to be the author, we think it is high time to enter our protest against the unwarrantable exaction of time and money to which the profession are subjected, by their repeated publications.

We have read it with attention, and confess ourselves disappointed; all that is either new, interesting, or of practical importance, in place of occupying four hundred pages, might very readily have been confined to forty, or if still more judiciously condensed, might have been conveniently thrown in the form of a half dozen notes to a new edition of some stock book on the same subject. As a book of *practical observations*, the title is a misnomer, or their merit is altogether negative:

the cases which are numerous (90) are drawn up in terms so general and indefinite, as to render a judgment upon them extremely difficult; and allowing them all the consideration they can rightfully claim, they illustrate nothing so much, as the ability and adroitness which Dr. R. possesses in the management of operative labour. The medical treatment of patients under these circumstances appears to have made no part of his plan; and although his cautionary directions antecedent to instrumental delivery are very just, and urged with a seriousness befitting the occasion, it is nevertheless true that his own conduct in all cases has not been controlled by the principles which he lays down for the government of his reader: cases 45 and 46, though they admitted the use, surely did not require the application of instruments: case 48 presented such a condition of soft parts as would have been effectually relieved by a bistoury, and most probably with much less lesion to the vagina; than by the application of the forceps:* the appendix to case 50, for the credit of the profession, should never have been told, much less published: case 52 though successful is certainly not calculated to serve as a precedent, it is true, it is not the first case on record, but we think it ought to be the last, where an accoucheur threw away the facilities of a safe, and sufficiently speedy delivery, completely within his control, for a state of things, which to say the least of it, might easily have disappointed his expectations, and defeated the hopes of his anxious and suffering patient.

Cases of this kind, though certainly not suited to serve as examples, are nevertheless not very serious in their consequences, because they are limited in their application, as chiefly referring to instrumental delivery: but errors in practice in cases of flooding, are not so; and we are sorry that it

* Vide case by Dr. Alexander H. Stevens, in the New-York Hospital Register.

becomes our duty to mark the discrepancy between the doctrine and the practice of Dr. R. in these circumstances. He in more places than one insists upon the necessity of uterine efforts accompanying the manual extraction of the placenta, in order to a safe delivery of the patient, and there is not a physician or midwife in the country of any experience, who will not subscribe to the justness of his remarks : but in the cases illustrative of the practice under the several heads of *retention*, *adhesion* and *collapse*, he appears to have considered flooding as attributable to the presence of the placenta in the uterus, and therefore the indication to be, its removal. Now although no woman can be supposed secure from flooding, so long as the placenta remains in the cavity of the uterus, it does not thence follow that its situation there is its cause ; so far is this from the fact : that in all cases where the uterus is quiescent, it may be viewed as serving a most important purpose in preventing this circumstance ; this is too obvious to require illustration : its removal therefore, so far from being the indication, is positively detrimental, and no effort to withdraw it ought on any account to be made until the contractile efforts of the uterus come in aid of its expulsion. It is from a want of due attention to this fundamental principle in midwifery practice, that so many lives are lost from flooding, immediately after the most flattering prospects have been held out to patients and their friends ; and it is the more to be regretted, since nothing but a total neglect of one of the plainest principles of the art ; a neglect arising from placing undue reliance on some contingent condition of the constitution, in so far as we know, is justly chargeable with this distressful termination of a labour, which in very many instances has been mis-called accident.

We have no wish to be unnecessarily minute in our remarks upon Dr. R. though we might extend them to a much greater length : in conclusion we shall only observe that his observations are much better calculated to teach the reader

the state of the art as known and practised within the precincts of the Lying-in charity of London, than to improve his knowledge of it as practised in other places. We are sensible that it is but a part of a work, but as we are not promised in the latter half any more detailed exposition of the opinions here offered, we have a right to suppose that the author considers it complete so far as it extends; and in the few strictures we have made we have acted accordingly: if judged by its own merits, we have no hesitation in according to it a distinguished rank among those productions, already too numerous, which are intended to serve the interest rather than the reputation of their authors.

A Treatise on Indigestion and its Consequences, called Nervous and Bilious Complaints; with Observations on Organic Diseases, in which they sometimes terminate. By A. P. W. PHILIP, M. D. F. R. S. Ed. &c. 8vo. pp. 363. London, 1821.

UNDER the denomination of Indigestion, Dr. Philip includes not merely the dyspepsia of authors, but all those derangements of the digestive organs, which have heretofore received the general and vague appellations of bilious, nervous and stomach complaints: viewing these different ailments as originating from the same causes, and however diversified in their ulterior progress, as grades of the same affection, he comprehends them under a term which in strictness is only applicable to a particular train of symptoms, and which has commonly been confined to express the effect of gastric derangement, rather than the consequences produced by such disorder. We do not, however, object to this new and enlarged signification of a term which serves sufficiently well to express the author's peculiar views of this class of

diseases, and can lead to no misconception, provided his acceptance of it be borne in mind.

He divides indigestion into three stages. The first stage commences with the usual indications of indigestion proper; as flatulence, distention of the stomach and bowels, acid, oily, and putrescent eructations, which arise from undigested food, succeeded by a train of symptoms showing the debilitated state of the stomach and bowels, the vitiated secretion of the gastric fluid, and finally, by various nervous affections, arising from the morbid irritation of the nerves of the stomach. The most prominent symptoms of this stage are, irregular state of the bowels, the evacuations being generally scanty, whilst the intestines appear to be distended and tense, the mouth clammy, tongue more or less furred, particularly in the morning, thirst and appetite impaired, feet cold, strength greatly depressed with langour, despondency, and great mental distress. As the disease advances, the bowels become more irregular, sometimes affected with diarrhoea, at other times remarkably torpid, yielding after much straining and griping very scanty stools, frequently mixed with mucus and tinged with a little blood. The evacuations vary much in appearance in the course of the disease, sometimes they appear to be perfectly devoid of bilious matter, at other times highly charged with it, then again black, green, and blueish and containing fragments of undigested food. The urine is sometimes passed in unusually large quantities, and is then limpid; but more frequently it is scanty, high coloured and lateritious; in some instances it is turbid and deposits a white sediment, which the author considers as indicating an alkalescent state of the system; the lateritious deposition the prevalence of an acid condition; and in other instances the urine is covered by a thin oily film which appears to arise from the imperfect state of the assimilatory process. A remarkable sympathy exists between the state of the kidneys and that of the intestines in this disease,

the urine remaining scanty and high coloured as long as the bowels are constipated, and flowing freely and of a paler colour, upon obviating that condition. As the disease proceeds, the patient becomes affected with irritation of the alimentary canal, pains of the stomach and lower bowels, a sense of weight and distention in the right hypochondrium, foul and clammy tongue, nausea, more rarely vomiting, depression of strength, occasional syncope and extraordinary despondency of mind. To these symptoms are soon conjoined those arising from sympathy, which are different in different cases; such as, pains in different parts of the body, depraved state of the senses of hearing, smell, taste, or of vision, alteration of voice, spasms of the trunk or limbs, numbness, &c. The patient now emaciates rapidly, and what was before only a temporary depression of strength, from a debilitating cause affecting the alimentary canal, is gradually changed into a real debility. The skin in protracted cases becomes dry, shrivelled, and sometimes scaly, the hair parched and standing in all directions, the whole surface cold, and the patient continually complaining of chilliness, and much disposed to hang over the fire: he bears all extremes of temperature ill, and is as much affected by excessive heat as by severe cold. Besides the more transitory cerebral symptoms, there are often marks of an habitual undue determination of blood to the brain, producing languid inflammation of the eyelids, tinnitus aurium, throbbing of the temples, drowsiness, stupor, &c. The thoracic viscera are often affected, occasioning dyspnoea, dry cough, pain in the side, sometimes fits of palpitation, &c. Finally, after frequent derangement of the hepatic function, the region close to the edge of the cartilages of the false ribs, and between the right hypochondrium and epigastrium, becomes tender to the touch; and about the same time also, the pulse gives on slight pressure the sensation of hardness.

This tenderness of the epigastrium and hardness of the pulse mark the commencement of the *second stage*. As the

disease advances other symptoms of febrile irritation are exhibited ; the tenderness extends over the whole of the right hypochondrium, attended with fulness and pain, sometimes fixed, and continued at others, shooting to the back, sternum, &c.

The *third stage* is marked by the supervention of a secondary or sympathetic affection in some neighbouring or distant organ ; most usually the brain, lungs or, liver. We have seen that these parts frequently suffer more or less in the first and second stages of the disease, but in those cases, the affection is strictly nervous, and ceases on the removal of the primitive disease ; whereas in this stage they suffer from organic lesion : the continued repetition of the nervous irritation at length involving the sanguiferous system and producing structural disease, which requires the treatment to be directed to the removal of such alteration. This secondary affection frequently completely subverts the primitive disorder ; the patient complaining no more of dyspeptic symptoms, and dissection after death showing no morbid alteration in the parts primitively affected. Even this secondary affection will sometimes be entirely overcome on a third part becoming implicated in the disease. The location of the secondary affection on different organs in different cases, the author thinks chiefly depends on the susceptibility of the individuals to particular derangements : thus in children the disease would be most likely to terminate in hydrancephalus internus, in persons aged from fifteen to thirty-five years in phthisis, in more advanced age in diseases of the rectum, and in old age, in those of the heart or head.

It seems to follow from the author's doctrine of inflammatory affections of distant parts arising from the primitive lesion of the digestive organs, and the remarkable alternation of dyspeptic symptoms, and attacks of gout, that this latter disease is sympathetic, and dependant on gastric derangement ; that it is to be warded off by maintaining the healthy and vigo-

rous condition of the digestive organs ; and to be treated on the same general principles as other secondary affections. But on the other hand, as the author very justly observes, gout is not invariably preceded by derangement of the first passages ; and indeed, the dyspepsia in general only comes on a short time before the first fit ; the patient having enjoyed a good appetite and digestion, and indulged in full feeding : so that Doctor Philip's explanation of the connection and dependance of a most intricate class of diseases, and which on first view promised to give us a clew to thread out the hitherto inexplicable nature of gout, utterly fails us, and we are left still to consider it as a disease *sui generis*, whose immediate cause is not at all known. The author, indeed, is fully aware of the fallacy of applying his doctrine of secondary disease, in its full extent, to explain the nature of this complaint, and he contents himself with remarking its frequent alternation with gastric derangement ; the relief of the dyspeptic symptoms usually attendant on the accession of a fit of the gout ; and the danger of interrupting the regular course of the disease in the extremities, lest the affection should become retrocedent and fix on some vital organ. He also considers that there is an important connection between the state of the digestive organs and urinary gravel ; not depending as in the former instances on sympathy, but arising from the super-abundance of acid in the system, detained by the impaired state of the cuticular function, and precipitated in the form of lithic acid whilst yet in the kidneys, where it agglutinates and forms urinary gravel.

In order to elucidate more satisfactorily the causes of indigestion, the author premises some observations on the process of digestion, which are chiefly the results of his experiments on this function as detailed in his *Experimental Inquiry into the Laws of the Vital Functions*. He contends, that the digested food remains in the stomach perfectly distinct from the undigested, and in contact with the stomach, whence it

receives the gastric fluid ; that digestion is least vigorous in the small curvature, more so in the large end, still more in the middle of the great curvature, and most of all in the pyloric end ; and that as the chyme moves on to be discharged through the pylorus, it is replaced by a portion of undigested food, by which means the whole contents of the stomach is successively presented to be acted on by the gastric fluid without the different kinds of ingesta being mingled together. From many experiments made on brute animals, he found that the division of the *par vagum* prevented the further secretion of the gastric fluid, but did not prevent that already secreted, (provided the animal was suffered to live) from digesting a portion of the food, which was immediately passed into the duodenum ; and the remainder part coming in contact with the villous coat of the stomach, irritated its nerves, and excited the efforts to vomit, which occur from one to two hours after the division of the nerves. The sense of hunger he attributes to the action of the gastric fluid on the stomach ; which he says may be entirely destroyed by freeing the stomach of that fluid by vomiting.

The remote causes of indigestion may be divided into, those which act directly on the stomach and intestines, those which act on other parts, and those which effect the system generally. The function of the stomach may be deranged in two ways ; either by causes which impair its secretory power, so that the food does not undergo the proper chemical changes ; or by such as enervate its muscular energy. The following produce indigestion in this latter way ; narcotics and other offensive substances received into the stomach, as, tobacco, distilled spirits, strong peppers, acid and putrid food, large draughts of very warm or cold fluids, repeated vomiting and morbid distention from over-eating. Distention of the stomach from excessive eating mainly depends on swallowing the food so rapidly that there is no time allowed for it to absorb the gastric fluid and cause the sensation of sated

appetite; it may also arise from prolonging the relish for food, by variety, high seasoned dishes, and stimulating drinks, or even by food of very difficult digestion, which swells and ferments in the stomach. The most of these causes, particularly the last, produce indigestion by deranging the nervous powers of the stomach, and thereby vitiating its secretion, as do also, anxiety of mind, intense study, excessive venery, &c. Other causes have a more complicated operation, affecting the digestive organs directly, and at the same time influencing them indirectly by their operation on other organs with which they particularly sympathise; as, intoxication, a cold, moist and variable atmosphere, ~~too~~free a use of calomel and other medicines which powerfully affect the abdominal secretions. So extensive, indeed, are the sympathies of the stomach, that whatever greatly disorders the functions of any important organ, may be ranked among the causes of indigestion. The affections which most frequently produce the disease by sympathy, are those of the bowels, especially habitual constipation.

The predisposing causes are, lesser degrees of the exciting causes, variable weather, hereditary disposition, and the period of life between puberty and the age of thirty.

The immediate cause is debility, either of the muscular or nervous power of the stomach, or of both. In consequence of the muscular debility, the stomach becomes unable to propel its contents into the duodenum, on which accumulation ensues, which causes distention, oppression, and other symptoms of the disease. The nervous debility causes a vitiated secretion of the gastric fluid, from which arises the evils of imperfectly digested food, nervous irritation propagated to distant organs by sympathy, and the reaction of this sympathetic irritation on the parts primarily affected, which in its turn acts as a secondary cause, further aggravating the disease, both in consequence of this sympathetic irritation and by further weakening the general powers of the system. The

author's doctrine of the way in which sympathetic action is induced, is somewhat peculiar. He contends that it is not as is generally supposed, by the nervous irritation being directly transmitted by nervous connexion to the part sympathising; but by being transmitted to the common source of nervous power, and thence sent to the part affected; and that the nervous communications by ganglion and plexus, serve only to transmit the nervous influence from the source to the different parts so connected. This hypothesis is worse than gratuitous—it contradicts the plainest reason of nervous connection, and indeed amounts to little less than a denial of the doctrine of sympathetic action altogether, a doctrine which Dr. Philip so frequently calls to his aid in his favourite employment of theorising. Although we are not able in every instance to trace a direct nervous communication between parts that habitually sympathise, as between the liver and the ligaments of the shoulder-joint, the skin and internal organs, &c.; yet these exceptions do not afford just grounds for rejecting the direct agency of the nerves, in by much the greater number of instances, where such connection is sufficiently evident. The author's doctrine of the propagation of disease by juxta-position, by which he explains the affection of the liver in the second stage of indigestion; its thin edge lying in contact with the diseased pyloric end of the stomach, rather than attributing it to sympathetic irritation or morbid determination produced by disorder of the sanguineous circulation in these parts, is in our opinion equally untenable with the former theory, and contradicted by the fact long ago observed, and now generally admitted, that parts of different structure and function, lying in contact and even connected by cellular membrane, extend the diseased action from one to the other with some difficulty, excepting in some cases of morbid poisons, or under other peculiar circumstances.

The author's treatment of the first stage of indigestion, is

very like the plan of treatment given by the best systematic writers for the cure of dyspepsia. He inculcates the necessity of avoiding and obviating the operation of the remote causes, especially those that act by producing nervous irritation and distention of the stomach, and lays great stress on the benefit to be derived from diet and exercise, which in the commencement of the disease, with the occasional aid of mild aperients to keep the bowels soluble, are alone frequently sufficient to restore the tone of the digestive organs. He is particularly full and judicious in his observations on the effects of the different articles of food and drink; but as he differs little from preceding writers on this subject, we shall not abstract this part of his work. He thinks it a common fault of dyspeptics to swallow their food too rapidly and without mastication, by which means the stomach becomes distended before the person is warned by sated appetite to desist; and also, that it is equally improper for such persons to take small quantities of food frequently and irregularly, by which means the appetite is kept continually palled and the system not sufficiently nourished: this fault is to be obviated by regular and stated meals. Malt liquors he deems invariably pernicious; distilled spirit scarcely less so, and only to be allowed, and that in very small quantities, where the stronger wines disagree with the stomach.

The medicinal treatment of this stage consists in premising with an emetic and aperient to unload the stomach and bowels, and then directing such medicines as tend to correct the morbid secretions of the stomach, as some of the alkaline remedies; among which the volatile alkali is often of signal advantage, conjoined with such remedies as by their stimulant and anodyne properties afford temporary relief, as aromatic infusions, assafœtida, myrrh, castor, camphor, and very small quantities of opium, especially in the form of Dover's powder, which appears to have a peculiar effect in allaying the irritation of indigestion, by its action on the skin.

In order to restore the tone of the stomach and bowels, recourse must be had in conjunction with the above remedies, to the use of tonics, particularly bitters, the carbonate of iron, the mineral acids and medicines of this class; paying due regard to the state of the bowels, which are to be kept soluble by the administration of aperients. Mercury in every form is to be wholly discarded from the treatment of this stage of the disease, excepting where the hepatic function becomes deranged; and it is then only to be given in small quantities, in the form of blue pill or calomel, and be immediately discontinued on this organ resuming its healthy secretion. The best substitute for mercury in such cases is dandelion, or the mineral acids, which will sometimes answer the purpose very well.

The treatment of the second stage of indigestion, differs in many respects from that suited to its first stage. There is now more or less inflammatory irritation, which renders it necessary to be more reserved in the use of tonic and stimulant medicines, giving only the mildest of this class of remedies, and in moderate quantities; submitting the patients to a lighter diet, and a freer use of aperients than was proper in the first stage; employing, at the same time, such antiphlogistic means as the febrile and inflammatory symptoms shall appear to demand, always bearing in mind the existing debility and the previous state of the patient. The tenderness of the epigastrium is best relieved by local bleeding with leeches, and is also frequently benefited by the application of blisters; but the former means is by much the more powerful in permanently overcoming the disease, and should be preferred and repeated if necessary, if the patient's strength admit of it. To these means should be conjoined the use of the nitrate of potass, given in doses of ten to twelve grains twice or thrice a day, combined with some gum; this salt possesses considerable power in abating the feverishness and irritation of this stage. In the latter part of the first stage

we have seen the occasional derangement of the liver require the administration of mercurial medicine ; in this stage the hepatic derangement is a more serious affection, and constant attendant, and calls for the more permanent action of this mineral ; even here however, to obtain its good effects, it must be given cautiously and in small doses ; as a grain or half a grain of the blue pill, or the 6th or 8th of a grain of calomel twice or thrice a day, and persevered in for a very long time ; as it is evident that such small quantities can only produce their good effects very slowly ; though they are not on that account less permanent or beneficial. If the mercury shows any disposition to salivate, it is to be discontinued until such disposition shall have subsided ; and its effects on the bowels are to be restrained by very small quantities of opium, or what is still better, by the extract of hyosciamus, which seems to possess the additional advantage of being beneficial in this stage of the disease by allaying the irritation of the stomach. If notwithstanding the employment of these means the disease still advances, a different state of the system supervenes, the sympathetic disease, which in the first stage was purely nervous, now becomes decidedly inflammatory ; and in those cases where no one vital organ is weaker than the rest, undermines the general powers of the system, and produces permanent and alarming debility. In proportion as the secondary affection changes into organic disease, the primitive affection becomes relieved, the digestive function becoming comparatively good, and the patient expresses his surprise that he should remain so debilitated and oppressed, since his dyspeptic symptoms had, in a great measure, left him. In this state of the system, the antiphlogistic remedies and the mercurial course which were before proper, would only still further sink the patient : on the other hand, the light animal food ceases to nourish, and aggravates the lurking fever, and must give place, in part at least, to a milk and vegetable diet, which now agrees sufficiently well with the ste-

and is moreover beneficial by tending to keep the bowels regular. In short, a mild and free air, change of place, and if possible of climate, a mild and easily digestible diet, moderate exercise, a regular state of the bowels, a moderate use of saline medicines when there is increased heat or sense of burning in the hands and feet, and the use of the sarsaparilla decoction are the means best adapted to restore the lost tone and vigour. The sarsaparilla the author has found of more service than any other medicine, and particularly recommends its further trial. This form of the disease has seldom been accurately distinguished; it is usually considered as a case of obstinate debility, and treated by the assiduous employment of tonic and stimulant medicines, which invariably aggravate the complaint, calling into action the lurking inflammatory disposition, and at length producing unequivocal inflammation of some one organ. This inflammatory affection constitutes a connecting link between the second and third stages of the disease; between the simply nervous affection of the first, and the organic derangement of the third. The organs most usually affected are the liver, bowels, lungs, heart and brain. The periods of life most obnoxious to its attacks are, infancy, and between puberty and forty years of age. The treatment is very much the same as that for the first part of the second stage, and it is fortunate that such moderate depletion will in general suffice, for the great debility will not allow of more active means. When the bowels are affected, after local bleeding by leeches, and blistering; the tepid bath, mucilaginous and anodyne clysters, mild aperients to keep up regular alvine evacuations, and mild vegetable diet are our main dependance. When the brain is the organ affected, which is very frequently the case, and constitutes the most distressing of the secondary diseases of indigestion, the means of relief vary according to the character and nature of the derangement. If it be of the inflammatory kind, even general blood-letting is sometimes admis-

sible, and always local bleeding by leeches, together with blistering and low diet. The nervous head-ach of the first stage will generally yield on freely opening the bowels and blistering the nape of the neck, or on the exhibition of valerian, or conium. In some instances however, the affection still progresses and becomes truly alarming; either, by the long continued irritation exhausting the nervous excitability, destroying the mechanism of the brain in the same way as concussion from an external injury, and finally ending in nervous apoplexy, which is invariably fatal, sometimes suddenly so: or the nervous irritation at length produces so great a determination of blood to the brain, as to induce inflammation of that organ, if the distention be chiefly confined to the capillary vessels, and congestive apoplexy, where the larger vessels suffer the most. Notwithstanding the pale and cadaverous appearance of the countenance in these cases, recourse must be had to blood-letting—where that fails, the patient is lost.—Urinary affection is also a frequent attendant on indigestion, but in its connexion with this disease, differs very materially from those secondary and sympathetic affections which we have been considering. The kidneys possess little or no sympathy with the digestive organs, and the appearance of urinary gravel: the frequent and painful micturition in indigestion arises from the state of the urine, caused by faulty digestion and is only to be permanently removed by correcting the morbid generation of acid in the alimentary canal and restoring the action of the cuticular vessels. Its consequences may be temporarily relieved by diluting and mucilaginous drinks. The author closes the treatment of the second stage by observing, that we must keep in view the origin of the disease: the debility of the digestive organs, however relieved by the secondary disease, is easily renewed by any cause deranging their function, and always has the worst effects. All the regulations respecting regimen then, and even the occasional use

of stomachic medicines are proper, as far as the symptoms of that disease admit of them.—Secondary diseases constitute the author's third stage of indigestion. Of these he only treats in the present work, of dyspeptic phthisis and asthma. The former is a disease implicating all the vital powers of the pulmonary organ, the latter a purely nervous affection. Dyspeptic phthisis is distinguished by being generally preceded by derangement of the digestive organs, particularly of the hepatic function, the patient is cast down and melancholy, the countenance sallow, the cough comes on at first in distinct fits, is generally dry, or at most a small quantity of mucus is thrown up after long coughing, which seems to arise rather from the irritation induced by the effort, than to have previously existed, and it is most harrassing after eating and on lying down; the expectoration at length changes from its limpid and glairy character to a purulent appearance, and is even sometimes mixed with blood, but seldom sanious, is more regular in quantity than in tubercular phthisis, where the occasional bursting of an abcess varies the quantity thrown up at different times very considerably; the pain is usually trifling, and chiefly confined to the pit of the stomach, and about the shoulders; and the hectic fever even after the purulent expectoration has commenced, is moderate, and the emaciation is not nearly so rapid as in phthisis from other causes. With these symptoms are usually combined others, which are diagnostic of the disease; as, flatulence and acidity of the stomach, irregular bowels, furred tongue, impaired appetite, oppression after eating, unnatural alvine discharges, and tenderness of the epigastrium. In the advanced stage the disease takes on more the character of tubercular phthisis, and the patient sinks with precisely the same symptoms as terminate that species.

Dyspeptic phthisis may be induced by any of the causes which produce pulmonary disease, excepting such as act directly on the lungs, but it most frequently arises from de-

rangement of the digestive organs. It occurs most usually in persons of phthisical predisposition. The disorder of the digestive organs commonly precedes the disease of the lungs, though not invariable. Autoptic examination has shown the same appearances of the lungs as in the other species of the disease, and in addition, generally more or less alteration of the liver or spleen, sometimes both.

Whilst the phthisical symptoms are merely sympathetic, they will generally be found to yield on employing the usual means to relieve cough and febrile irritation, combined with the milder parts of the treatment for the second stage of indigestion; such as, an attention to diet, to prevent the stomach from being oppressed, maintaining a free state of the bowels by the use of aperients, and preserving a sufficiently copious and healthy secretion of bile, by the occasional administration of small doses of blue pill or calomel, as best suits the particular case. When actual disease of the lungs, announced by the aggravation of the hepatic disorder, purulent expectoration, &c. occurs, the case must be submitted to the decided treatment of the second stage of indigestion, combined with the usual remedies for phthisis. The blue pill is to be given in the manner before directed, even carried to the extent of producing a slight effect on the gums, and to be aided by giving at the same time two or three table spoonfulls of the expressed juice of dandelion twice or thrice a day, which will be found an excellent remedy in these cases. An external irritation over the tender epigastrium, must be continually kept up by means of blisters or a seton. When the third stage supervenes, marked by the subsidence of the dyspeptic and hepatic symptoms, the case becomes hopeless, and our art is limited to affording temporary alleviation. From the foregoing observations on the treatment of dyspeptic phthisis, the treatment of the other secondary inflammatory diseases of indigestion may be inferred: the principle is, to combine the treatment for indigestion with

that which is proper for the disease of the particular organ secondarily affected.

The asthma, which proceeds from disorder of the digestive organs, the author attributes to the impaired condition of the nervous influence of the lungs, and is distinguished from the spasmodic kind by being habitual; the breathing continuing constantly oppressed, better and worse at times, it is true, but never entirely free. This kind he has found in every instance greatly relieved, and in some cases permanently cured by the employment of galvanism. Other diseases depending on the same nervous cause, provided there be no inflammatory tendency, he thinks would be greatly benefited by the employment of this agent, but he can only speak from experience of its use in asthma. His method of employing it is by applying two thin moist plates of metal, two or three inches diameter, one to the nape of the neck, and the other to the lower part of the epigastrium, so as to pass the influence as near as possible in the direction of the nerves, and to connect them to a trough containing four inch plates of zinc and copper, wet with a fluid composed of one part of muriatic acid, and one hundred and twenty of water. Usually, from eight to sixteen plates, were as many as the patient could bear without complaint, and generally relieved the breathing in the course of from five to fifteen minutes: the operation is to be repeated daily as long as the disease shall require it. The means suited to correct the hepatic derangement are not to be neglected, although this agent possesses considerable power in stimulating the liver to healthy action. It is somewhat surprising that Dr. Philip had not given galvanism a fair trial in the earlier stages of indigestion: for if his account of its *modus agendi* be correct; that it acts by supplying the place of an impaired or enfeebled nervous energy, it would be an excellent remedy, not merely in the first stage of indigestion, but also in many cases of the second stage.

We have forbore to express much opinion on the various

doctrines and practical observations of the work before us. We have, we believe, given a tolerable full view of them, and leave it to the reader to judge how far they are calculated to advance our knowledge of a very intricate class of diseases. The work is certainly not without merit, and would do credit to an ordinary writer, but will not enhance the reputation of Dr. Philip, who has, we think, done better on former occasions. His besetting faults are here carried to their maximum—a disposition to give new explanations to every fact and appearance that falls in his way—an extreme diffusiveness of style, with a tendency to abandon previous arrangements—and by intermingling his topics to render the import of particular expressions obscure and doubtful. Indeed, so difficult have we found it to follow the author's episodial method, that we have felt ourselves in continual hazard of misrepresenting his general doctrines, by laying too much stress on collateral views, which seemed to us, to invalidate in some degree the main drift of the work.

Lectures on the Structure and Physiology of the Male Urinary and Genital Organs of the Human Body, and on the Nature and Treatment of thier Diseases ; delivered before the Royal College of Surgeons in London, in the summer of the year 1821. By JAMES WILSON, F. R. S. Professor of Anatomy and Surgery to the College, &c. 8vo. pp. 434. London, 1821.

It has been said of the writings of some gifted men, that they had anticipated a future and more cultivated age, when alone they would be fully comprehended and justly appreciated. The lectures of Mr. Wilson are likely we fear to suffer from an opposite error—they have appeared some fifty years too late. What had been a valuable acquisition in the days of Sharpe and Wiseman, the advances that have

since been made in anatomical and surgical knowledge, and its general diffusion in works already extant, becomes at the present time of ordinary interest. And as these lectures communicate nothing but what is already before the public, they can entitle the author to no other credit than that of a judicious compiler; and even this merit is not so eminent as to have warranted the present publication. As lectures they doubtless answered their original destination sufficiently well, and illustrated by the extensive Hunterian collection in Great Wind-Mill street, presented a fair and interesting view of the present state of our knowledge on the subjects treated; but as a printed performance they lose this advantage, and sink to the more ordinary claim of a good compilation.

With such a character of the work, the reader will not expect an abstract of its contents, this would be little better than treating him with what has long constituted his ordinary fare; and in lieu of it, shall content ourselves with giving the author's excellent summary, of the healthy and morbid condition of the urine—of the nature of renal and vesical calculi and the treatment that is appropriate to the different varieties of this affection. This is by far the most valuable part of the work, and appears to be a candid and able view of these subjects, chiefly deduced from the labours of Wollaston, Bostick, Brande, Marcet, Berzelius and Prout.

“Healthy urine, when first voided, is a transparent fluid of a pale yellow colour, and having a slight aromatic odour which leaves it as it cools, being succeeded by another called the urinous smell, which it generally retains until putrefaction commences.—In some instances, after a few days, the urinous smell is succeeded by one of a sour nature; in time this gradually disappears, and the fetid alkaline odour finally takes place.

“The specific gravity of urine was found, by some experiments made by Mr. Cruikshank, of Woolwich, and Dr. Rollo, to vary from 1005 to 1033, that of distilled water being 1000.

“It has been remarked by able chemists, that there is hardly any essential fluid in the body, which does not yield traces of more or less phosphate of lime. This substance exists in the blood in a

considerable proportion ; it may be detected in bile, in saliva, in milk, in the tears, and its presence is readily demonstrated in urine ; for, if a solution of ammonia be poured into fresh urine, it becomes turbid, and phosphate of lime is gradually deposited. This salt, in itself very insoluble, appears to be held in solution in urine by an excess of phosphoric acid, since urine reddens litmus paper, and deposits a neutral phosphate of lime when lime-water is added.

“ An accurate examination of the precipitate formed by ammonia, will show that a small proportion of magnesia is mixed with the phosphate of lime.

“ Urine, when exposed in a vacuum, gives out a quantity of air ; the greater part of which, Professor Brande asserts, is carbonic acid gas. This acid, he states, exists in the human urine ; Berzelius has doubted this, but other chemists have agreed in opinion with Professor Brande.

“ After urine has remained in a vessel undisturbed for many hours, it deposits a sediment, which is generally in the form of minute crystals of a red colour. These crystals are lithic acid.—Lithic acid is not found in the blood, but always forms a constituent part of healthy urine, existing in it in a state of solution at all ordinary temperatures.

“ Lithic acid is distinguished by the following properties :—1st, it is very sparingly soluble in water ; 2d, it dissolves with facility in pure alkalies, and in all alkaline carbonates ; 3d, it is again separated from these bodies, in the form of a white precipitate, by the addition of muriatic acid ; 4th, if a little of the lithic acid be dissolved in nitric acid, and the solution evaporated to dryness, there remains a substance of a beautiful crimson colour. Dr. Prout, from experiments made by him, says that it is probable the lithic acid does not exist in healthy urine in a pure state, but is in a state of combination with ammonia, forming lithate of ammonia, and that, in reality, urine contains no uncombined acid at all.

“ If a solution of tannin is added to fresh urine, a copious insoluble precipitate is formed, which consists of the tannin in combination with gelatine.

“ The substances which have been just enumerated, may be detected in urine without the application of heat. The evaporation of urine affords several other ingredients. One of these is a very peculiar substance to which many of the principal properties of urine are owing. This substance has received the name of urea, and was first described by Rouelle, junior, under the title of saponaceous extract of urine. It may be obtained by evaporating fresh urine by a very gentle heat, to a thick consistency ; on cooling, a crystalline mass is obtained, to which about three times its weight of alcohol is to be added, and a gentle heat applied. By this means

a portion will be dissolved. The solution is to be decanted off from the remaining sediment, and very gently evaporated to the consistence of syrup. A concrete matter is obtained on cooling, which is urea. (For the description of this process I have been indebted to Professor Brande.)

“Urea has the form of crystalline plates, which are transparent and nearly colourless, inclining however to a pale straw colour. It has a faint and somewhat fetid peculiar smell, but not urinous, and is of the consistency of wax. It is neither sensibly acid nor alkaline. When exposed to the air in damp weather it deliquesces ; but does not seem to be decomposed. Exposed to a strong heat it melts, and is partly decomposed and partly sublimed apparently unaltered. It is very soluble in water, producing a degree of cold during its solution. It is also soluble in alcohol.

“If nitric acid be poured into a concentrated aqueous solution of urea, a number of white laminated crystals are deposited, which consist of urea in combination with nitric acid. It forms a similar compound with oxalic acid, and in neither of these compounds are the acids neutralized.

“Urea is a substance peculiar to urine ; it is met with in the urine of graminivorous as well as of carnivorous animals, and is formed by the action of the kidney from some part of the blood.

“When alcohol is employed to take up the urea, a residuum consisting of certain saline substances is left behind. This residuary matter was formerly distinguished by the names of fusible salt of urine, and microcosmic salt. It is soluble in water, and if allowed to crystallize, will afford two distinct species of crystals ; at the bottom of the basin there will be a layer of flattened rhomboidal crystals, while the uppermost are in the form of rectangular. The former or undermost layer consists almost entirely of the phosphate of ammonia, while the latter or uppermost are phosphate of soda. These two salts may be separated by exposing them to a dry atmosphere : the phosphate of soda effloresces, falling into a white powder ; while the phosphate of ammonia remains unaltered.

“By evaporating urine with considerable caution, crystals of muriate of soda and muriate of ammonia may be obtained.

“Urine also contains a small portion of sulphur, which is detected by the black incrustation of sulphuret of silver, formed when urine is evaporated in a silver vessel.

“Dr. Prout on this subject observes, that sulphur appears to exist in some peculiar state of combination in the urine, but by far the greater proportion of this principle exists in the urine as sulphuric acid, in combination of course with the alkaline matter present. He further observes, that the presence of sulphuric acid in urine may be known by its yielding a precipitate insoluble in nitric acid on the addition of the nitrate of barytes.

“From the accurate examinations of Professor Brande, it appears that healthy urine always contains the following substances, viz :—

1. Phosphoric acid.
2. Phosphate of lime.
3. Phosphate of magnesia.
4. Carbonic acid.
5. Lithic acid.
6. Gelatine.
7. Urea.
8. Phosphate of soda.
9. Phosphate of ammonia.
10. Muriate of soda.
11. Muriate of ammonia.
12. Sulphur.

All which substances are held in solution by a considerable portion of water. Urine is also sometimes, indeed generally, mixed with the mucus from the membrane lining its containing parts.

“Berzelius has observed that all urine, when newly evacuated, contains a matter suspended in it which in some degree affects its perfect transparency, and that this matter is the mucus of the inner coat of the bladder. If the urine while yet warm be poured on a filter, it will pass perfectly clear, and the mucus will remain on the filter in the form of transparent and colourless flocculi. Mucus is heavier than the urine, and collects in the lower part of the reservoir : thus, when a person evacuates his urine in a standing or sitting posture, after having continued in that posture for a long time, and receives it successively in different vessels, the first portion will contain the largest quantity of mucus, the second less, and the succeeding portions none whatever ; but if a person be obliged to remain long on his back, and to evacuate the urine in that position, the lowermost portion does not come away first, therefore that which is last evacuated will contain most mucus.”

Urine voided immediately after a full meal contains very little urea, whereas this substance constitutes nineteen twentieths of the solid contents of urine which is voided the first thing in the morning. It is generally higher coloured, more fetid and acrid in old age than in youth, when voided by a person that is warm, than by one that is cold. Various substances taken into the stomach are capable of imparting peculiar properties to this secretion : asparagus gives it a more fetid odour, turpentine that of violets, rhubarb and madder render it of

a peculiar colour, and, indeed, various substances especially in persons of weak digestive powers impart to it their peculiar odours. An increased flow very frequently accompanies a peculiar state of nervous irritability: it is thus produced by the state of the mind, as well as by great quantities of fluid taken into the stomach; and in these cases is of a pale colour. When an extensive local inflammation exists, or an inflammatory state of the system is present, the urine is always in diminished quantity, and of a deep colour. In different diseases it receives additional materials; such as, albumen, coagulable lymphs, red particles of thin blood, nitric and many other acids, sugar, bile and pus.

“In inflammatory fever, the urine is of a very red colour, or deep brown, but is perfectly transparent until the disease tends to terminate. It then deposits a quantity of reddish matter, termed the lateritious sediment, which generally consists of animal matter, phosphate of lime, and lithic acid; sometimes of lithate of ammonia.

“The red lateritious sediments vary in tint; but, according to Dr. Prout, they consist essentially of the lithate of ammonia, or the lithate of soda, tinged with a large proportion of the colouring principle of the urine, and more or less of the purpurates of ammonia and soda; sometimes they contain also a small proportion of the earthy phosphates. The presence of this kind of sediment is considered as a sure indication of feverish or inflammatory action. The urine which deposits such sediment is usually of a deep red or brown colour, and of high specific gravity: the deeper the colour of the sediment, and the more approaching to red, the more severe in general are the inflammatory symptoms.

“In intermittent fevers, the urine varies in its appearance according to the stage of the disease; but when a paroxysm of ague is over, the urine which is then voided deposits a red powder, differing from the common lateritious sediment. It is a peculiar morbid appearance, and has been particularly examined by Proust, who has called it, from its colour, rosacic acid. It is distinguished from lithic acid by its solubility, and by its not becoming of a crimson colour on the addition of nitric acid.

“In typhus fevers, the urine is loaded with gelatine and urea. In healthy urine the proportion of urea is such, that, on the addition of nitric acid, no crystallization takes place till the urine is concentrated by evaporation; but in some cases of disease the urea

is so increased in quantity, that crystallization is produced without any concentration.

“In gouty disorders, a large quantity of lithic acid is often deposited in the form of red crystals as the urine cools.

“In hysteria, the urine is of a very pale colour : it contains an abundance of saline matter, but is very deficient in urea and animal matter.

“In jaundice, the urine is usually of a brown colour, which arises from an admixture of bile.

“In ascites, the urine frequently exhibits a very peculiar appearance ; it is of a yellowish green colour and extremely viscid. It deposits a copious sediment of rosacic acid mixed with lithic acid, phosphate of lime, and animal matter ; and it is often loaded with albumen to such a degree as to deposit it when heated, or on the addition of concentrated sulphuric acid. These appearances, which, however, are not constant, would seem to arise from the presence of serum in the urine ; for the liquor of dropsies does not materially differ from the serum of the blood, and therefore contains much albumen.” “The disposition in the kidney to separate this principle from the blood often goes on for years, but sometimes it is only accidental and depending on temporary causes. When of long duration, it is usually accompanied by a desire to pass the urine frequently, and the quantity evacuated is much increased beyond that passed in a healthy state ; it is also accompanied by great irritability and general uneasiness, but without any particular sensation being referred to the kidney ; and where albumen is separated in a large quantity, it is also usually attended with an inordinate desire for food. The albumen sometimes coagulates in the bladder in such quantities, that much difficulty is found in passing the urine by the urethra. Albuminous urine, when voided, appears to form a coagulated mass of a pale yellow or amber colour, and from this mass an apparently serous fluid may be pressed, or will drain out ; the remaining coagulum has then the appearance and properties of the coagulated lymph of the blood, and is sometimes mixed with, and coloured by, the red particles of that fluid.

“The danger of this morbid secretion of albumen must depend on the degree to which the separation of it is carried, and the length of its duration. It sometimes, when moderate, has lasted for years, without producing any very injurious effects on the constitution ; but when both permanent and excessive, it indicates some great derangement of the animal economy, and must prove injurious.

“How the disposition to separate albumen from the blood, and to deposit it in the urine, is to be counteracted, we cannot know, unless the state of the kidney, as to the presence or absence of inflammatory action, could be ascertained. Such separation often

occurs in dropsical patients ; but whether it is to be considered as the cause or the effect of the dropsy, is not always very easy to be determined. Dr. Wells conceived that albuminous urine was connected with too great action in some part of the system ; and Dr. Blackall is of opinion, that when the urine is albuminous in dropsy, the use of blood-letting is in general indicated. We know that in local inflammations the coagulable lymph is separated from the blood, and it may be also separated in the kidneys, if their secreting action is too strongly excited, and then bleeding might do good ; but before this plan is adopted, it should be ascertained whether the dropsy is the cause of the separation of albumen, or the effect ; if it proves to be the cause, by bleeding we should increase the disease. I have seen instances in which the muriated tincture of steel proved very useful in lessening, and I believe in removing, this complaint."

"Dr. Prout states that there is a peculiar condition of urine, in which it is found to contain one or more principles, usually rather more resembling those met with in the chyle than in the blood. When so, on being exposed to the action of heat, it becomes opaque, and deposits flakes of albuminous matter. That which is passed some time after meals is generally more loaded with albuminous matter, and is more prone to decomposition. In some instances, what is voided at this time, after standing for a period, throws off a sort of creamy matter upon its surface. He observes, that this affection of the urine exists in every possible degree, from barely perceptible traces of an albuminous principle to perfect chyle or blood ; that in some cases the urine is constantly albuminous for years, and in others it becomes so only occasionally. This state of urine is common in dropsies.

"When urine is rendered albuminous by blood, it is readily distinguished from the above-named affection by the presence of the red particles which subside to the bottom of the vessel in which the urine has been allowed to stand some time. Bloody urine is from the same cause more or less of a dark colour.

"Dr. Prout further observes, that there is a species of mucus sometimes found in the urine, and derived, he believes, from the prostate gland when in a state of irritation or disease, which is capable of undergoing a sort of coagulation by heat, and which he supposes has sometimes been mistaken for albumen. This, however, may be readily distinguished from albumen by its being coagulated by dilute acetic acid, which albumen is not.

"In some cases of rickets, the urine has been found saturated to a high degree with phosphate of lime."

"The urine in this disease (diabetes) is sometimes of a pale straw colour, and sometimes not unlike to whey : its smell is faint, and often

resembles that of whey when fresh. It is always more or less sweet, sometimes as sweet as the most concentrated solution of sugar in water. Its specific gravity varies from 1.020 to 1.050: it is sometimes higher than this. The quantity of urea is very much diminished, and it contains for the most part little or no lithic acid. The usual saline matters existing in healthy urine are met with in diabetic urine in nearly the same relative proportions, but their absolute quantity is very much diminished. Diabetic urine sometimes contains a little blood, and not unfrequently albuminous matter similar to that of the chyle."

"In diabetes, a saccharine mucilage may be obtained from the urine by evaporating it to a thick consistence, and adding alcohol, which takes up the sugar and the urea; the greater part of the latter is deposited as the urine cools. In a case related by Mr. Cruikshank, of Woolwich, the urine daily voided by a patient labouring under this disease afforded twenty-nine ounces of sugar.

"Berzelius states, that the cloud which appears in urine during fever is in fact merely the mucus of the bladder, which, from the increase of the specific gravity of the urine, subsides more slowly or sometimes remains suspended in the fluid.

"In catarrhus vesicæ the same author observes, that the urine is loaded with an enormous quantity of mucus matter which is suspended in it. This matter is a true mucus, although, from diseased action in the organ producing it, its characters are different from those of healthy mucus secreted by the bladder, and approaching nearly to that secreted in the nose: the secretions of different mucous membranes, he observes, being in some things chemically different, depending upon the uses to which their peculiar mucus is to be applied."

"An excess of urea is sometimes met with, not only in regard to the proportion of water contained in the urine, but also to that of the other materials. It is not uncommon to find this excess in the urine of children, and in people depositing the phosphates. In these cases, the urine is usually pale, but occasionally it is high-coloured, like porter and water mixed: when first voided, it reddens litmus paper; in many other respects it is not dissimilar in appearance to healthy urine: it is for the most part entirely free from sediment; but on the addition of nitric acid, crystallization speedily takes place, and it is then found to contain an abundant quantity of urea. Such urine is very prone to decomposition, and soon becomes alkaline, especially in warm weather.

"Dr. Prout observes, that those diseases in which an excess of urea may be considered as in some degree characteristic, do not appear to have been hitherto distinguished; but have been probably confounded with other diseases, and particularly with that form

of diabètes which has been sometimes denominated diabetes insipidus ; they differ, however, considerably from diabetes.

“ Where urea is in excess, there is usually a frequent and almost irresistible desire of voiding the urine : this does not arise from fulness of the bladder ; for, in general, a small quantity is voided at any one time ; but from the frequency, the total quantity voided in a given time is greater than natural. This quantity is augmented in cold weather, and is also increased by all causes producing mental agitation. There is often a sense of weight or dull pain in the back, and an occasional irritation about the neck of the bladder, which sometimes extends along the urethra. The pulse however is not affected, and the tongue is clean : there is no remarkable thirst, nor is there any craving for food, nor are the functions of the stomach and bowels much deranged.

“ This affection often occurs in persons of the middle age, of thin and spare habits, whose countenances in general denote anxiety, but who are free from gout and other constitutional disease, and who have no apparent defect in the urinary organs. From Dr. Prout's observations it would however appear, that a majority of the cases which he had seen, were in persons who early in life had been addicted to habits, which, when carried to excess, must weaken the urinary as well as the genital organs ; so that whatever debilitates the system, and particularly these organs, may give origin to this affection. He supposes that the train of symptoms which takes place, in cases where the urea is in constant excess, if permitted to proceed, will sometimes terminate in diabetes, or in a deposition of the phosphates. Stimulating remedies, such as the copaiba, have been found to increase the complaint ; and sedative medicines, particularly opium and hyosiamus, joined to those which may be necessary to keep the stomach and bowels in healthy action, have been found the most efficient in suspending the disease, if not in removing it altogether. As this complaint often accompanies diseases which require surgical aid, I have mentioned the symptoms, that they might not be overlooked by the surgeon ; but when they occur independent of other diseases, they are to be considered as belonging in their treatment to the province of the physician.”

“ The sediments which are deposited in the form of a fine powder after the urine begins to cool, exist in a state of solution in the urine before it is discharged, and when deposited, the particles do not appear to be crystalline. Their colour and composition are various ; the first is generally red, diluted with more or less of brown or yellow ; the second may contain, at different times, principles capable of becoming solid themselves, or forming a solid compound with any other principles found in the urine. Dr. Prout says, ‘ that generally speaking they may be stated to consist of two

species of neutral saline compounds, viz. the lithates of ammonia, soda, and lime, tinged more or less with the colouring principle of the urine, and with the purpurates of the same basis, and constituting what are usually called the pink and lateritious sediments; and, secondly, the earthy phosphates, namely, the phosphate of lime, and the triple phosphate of magnesia and ammonia, constituting for the most parts sediments nearly white. These two species of sediments very frequently occur mixed together, though the lithates generally prevail. The salts of such sediments have little tendency to assume the crystalline form.' "

URINARY CALCULI.—“Urinary calculi differ much in their consistence as to hardness and softness; some are loose and are easily broken into pieces; others are very firm and nearly as hard as marble. The colour of urinary concretions will vary much, so will their surface in regard to smoothness or roughness: in the first the variation may be from a chalky white to a deep mulberry brown, and in the second from a uniform and smooth surface to one which is rough and more tuberculated than a mulberry. These two properties of deepness of colour, and tuberculated inequality, generally indicate the chemical properties of the calculus, but not in every instance, as the colour may depend on bloody mucus, or some vitiated secretion being blended with the concretion. Their internal structure, as seen by a section of the whole calculus, generally exhibits different laminæ formed in concentric circles, which often vary in colour and in chemical properties. These concentric laminæ are sometimes formed round nuclei consisting of extraneous matter, but often consisting of similar materials to those of which the rest of the calculus is composed. A calculus, when cut through, in some instances shall exhibit concentric circles forming on two or more nuclei, at first separately, but afterwards the two sets shall become consolidated together by concentric laminæ surrounding the whole, as in the specimens now produced.”

“Until Scheele’s discovery of the lithic acid in 1776, nothing certain was known of the composition of urinary calculi; since that period, to the labours of Dr. Wollaston, we are indebted for the knowledge of the following materials contained in these concretions, viz. phosphate of lime, ammoniaco-magnesian phosphate, oxalate of lime, and cystic oxyd. Dr. Wollaston also ascertained the composition of the calculi from the prostate gland.”

“To Dr. Proud we are greatly indebted, not only for much useful information on the subject of urinary calculi, founded on his own laborious investigation of their properties, but also for his attention and accuracy in collecting and arranging the valuable materials dispersed in the works of others. Wishing to ascertain the comparative prevalency of the different forms of urinary deposite,

and the order of their succession, he has collected data for that purpose from the examinations—”

of 823 calculi made by different chymists and having divided the concretions into six species, marking their general character, the following is the result :

1st. *Species*.—“ The lithic acid calculus is hard, inodorous, and generally of a reddish brown or fawn colour, and of a flat oval shape. Its surface is sometimes smooth ; but sometimes studded with fine, but smooth tubercles. Its specific gravity generally exceeds 1,500. When cut into, it consists of concentric laminæ ; when broken, the fractured surface generally exhibits an imperfectly crystallized texture. It is one of the most common species of calculi, and was first particularly described by Scheele. It is completely soluble in caustic potash, and precipitable again in the form of a fine granular powder by any acid.

“ This species of calculus can generally be identified, by being submitted to the flame of the blow-pipe. A portion of calculus, not larger than a pin's head, held by the extremity of a slender pair of platina forceps, and thus exposed to the action of flame, if composed of lithic acid, will blacken, emit a smoke having a strong and characteristic odour, and will be gradually consumed, leaving a minute quantity of white ash, which is generally alkaline. Another test is the application of a drop of nitric acid to a small particle of lithic calculus, and then heat applied to both ; the lithic acid is dissolved, and if the solution be evaporated to dryness, the residue assumes a beautiful pink, or carmine colour.

“ A concretion has been described by Dr. Prout, under the name of lithate of ammonia calculus. It is generally of a small size, and is rather uncommon. It is usually of a clay colour ; its surface is sometimes smooth, and sometimes tuberculated ; it is composed of concentric laminæ, and its fracture much resembles that of compact limestone. It is much more soluble in water than the lithic acid calculus, and always gives off a strong smell of ammonia, on being heated with caustic potash. Before the blow-pipe it usually decrepitates strongly.

“ It is the opinion of Dr. Prout, that at least two thirds of the whole number of calculi originate from lithic acid : for as the lithic acid forms by far the most common nucleus round which other calculus matter is subsequently deposited, if such nuclei had not been formed and detained, two persons at least out of three who suffer from stone, would never have been troubled with that affection.

“ It is here to be remarked, that although the general appearances of lithic calculi have been mentioned, much difference exists in their sensible properties : viz. in their colour from deep fawn to clay ; also in the distinctness of their laminæ, and their crystal-

lized texture. The depth of fawn colour, and the more of crystallized texture, denotes that the calculus in its composition approaches nearer to pure lithic acid. The lighter the colour, the greater in general is the proportion of lithate of ammonia and the phosphates."

2d. Species.—"The properties of the oxalate of lime calculus were discovered by Dr. Wollaston. This calculus, from its colour and shape resembling very much a mulberry, has usually gone by the name of mulberry calculus. It is generally of a dark brown colour. Its specific gravity is from 1.428 to 1.976. Its surface is very rough and tuberculated. Its substance is usually very hard; and when cut through, it appears to be of an imperfectly laminated texture. But sometimes a calculus, of which the oxalate of lime shall be the chief component part, shall be remarkably smooth, and of a pale and somewhat bluish colour; and when small, resembling hemp-seed. A calculus which I now produce, of so large a size as to fill up and greatly distend the pelvis of the kidney, is nearly white, although, from Professor Brande's analysis, it is composed of the oxalate of lime. It has therefore been conjectured, that the mulberry colour of the tuberculated calculi may arise from a mixture of blood thrown out from the vessels of their containing parts, in consequence of the roughness of their surface. The hemp-seed calculus is supposed to be of renal origin; and Professor Brande has remarked, that persons who have voided this species of concretion, are less liable to a return of the complaint than those subject to lithic calculus. The observation of Dr. Marcet coincides with this interesting remark; and so far as my own experience goes, I am convinced of its justness, and I think it will apply to all calculi voided which are formed of oxalate of lime. The mulberry calculus seldom exceeds the middle size and is rather common."

"This species of calculus, although in general abundantly distinguishable by its external appearance, is not always so. Before the blow-pipe, it expands into a kind of white efflorescence, which, when moistened and brought into contact with paper stained with the juice of violets, turns it green; or with turmeric paper, changes it to red."

3d. Species.—"The cystic oxide calculus is of a yellowish white colour, and semi-transparent; commonly it is smooth, but is not always so. Its external appearance resembles more nearly the triple phosphate of magnesia caculous than any other; but is more compact.

"The rarity of this calculus is such, that only three in 294 appear from the data before alluded to, to be of this description; and three, out of the five collections which were examined, contain no specimen of it. There are none in this collection. When broken,

its structure does not consist of distinct laminæ, but presents a waxy, confusedly crystalized mass throughout, having a peculiar glistening lustre. It was first discovered and described by Dr. Wollaston, in the Philosophical Transactions for 1810. It yields a peculiar smell when heated, and is very readily soluble in acids and alkalies."

4th Species.—"The phosphate of lime, or bone earth calculus, is generally of a pale brown colour on its surface, which is also so smooth as to appear polished; when sawn through, it is found very generally laminated, and the laminæ commonly adhere so slightly to each other as to separate with ease into concentric crusts. This calculus does not fuse when the usual flame of the blow-pipe is applied to it; it first blackens and afterwards becomes perfectly white. It is readily soluble in muriatic acid; and if the excess of acid be not very considerable, the lime may be precipitated in the form of an insoluble compound, by oxalate of ammonia."

5th Species.—"The triple calculus, or ammoniaco-magnesian phosphate, is always nearly white; its surface is commonly uneven and covered with minute shining crystals, and these appear also internally between masses of other calculous matter. Dr. Wollaston, to whom we are first indebted for any accurate knowledge of this calculus, describes the form of the crystals to be a short triliteral prism, having one angle a right angle, and the other two equal, terminated by a pyramid of three or six sides; these calculi are whiter but less compact than those of the phosphate of lime. The texture of this calculus is not laminated, and it is easily broken and reduced to powder; in some rare instances, however, it is hard and compact. It is scarcely ever found without an admixture of some other substance, but is often discernible by its whiteness and crystalline sparkling appearance.

"Before the heat of the blow-pipe, this calculus gives off the odour of ammonia; it then becomes opaque, and is capable of undergoing an imperfect fusion. It is readily soluble in dilute acids, much more so, indeed, than the phosphate of lime; and if these solutions have abundance of ammonia added to them, the triple crystals re-appear."

6th Species.—"The fusible calculus occurs more frequently than any other urinary concretion, excepting that of lithic acid. The late Mr. Tennant found that, when urged by a blow-pipe instead of being nearly consumed, a large proportion of it melted into a white vitreous globule. Dr. Wollaston first ascertained its true nature. It is composed of a mixture of the phosphate of lime, and triple phosphate of magnesia and ammonia. It is commonly whiter and more friable than any other species of calculi, so that it sometimes resembles a mass of chalk, leaving a white dust on the fingers. The colour is a less brilliant white than the triple

and inclining to grey. In general, the laminated structure is not obvious ; but it sometimes separates into layers, the intestices of which are often studded with sparkling crystals of the triple phosphate. The variety of this species, which is not laminated, often acquires a very large size, and assumes the form of a spongy, friable, whitish mass, evidently moulded to the contracted cavity of the bladder in which it has been formed. The fusible calculus may be readily distinguished by the ease with which it melts before the blow-pipe. It is readily dissolved by acids, and in particular by the dilute muriatic acid ; and if to this solution oxalate of ammonia be added, the lime is precipitated alone, and the magnesia may be afterwards separated by the addition of pure ammonia. As the proportions of the two phosphates in this calculus are liable to indefinite variations, so its degree of fusibility is also different. The proportion of lithic acid may be ascertained by a solution of caustic potash, which dissolves the lithic matter, and expels the ammonia, but has no effect on the other ingredients of the calculus.

“ In most instances, when concretions take place round any extraneous substance introduced into the bladder, they are found to consist of the mixed phosphates or fusible calculus.

“ It would appear from general result of the examination of the collections, which Dr. Prout has so carefully drawn, that about one fourth of the whole number of calculi consists of the phosphates ; and that half of this proportion, or about one eighth, consists of the mixed phosphates ; but that gentleman remarks, that whoever has paid much attention to the subject of urinary calculi, will perceive that these estimates are very incorrect, especially as far as regards the proportion of the calculi composed of the mixed to those composed of the pure phosphates. He also farther observes, that calculi have frequently the appearance, externally, of being composed of the phosphates, while they contain a nucleus of a very different substance : except, therefore, calculi are sawn through the centre, it is impossible to ascertain their composition where the phosphates are concerned. He supposes, from this method not being pursued, in examining some of those at Warwick, sufficiently accurate data are not given to enable us to draw any inference with respect to the point in question. And from some other reasons, which he also gives, he thinks we are entitled to conclude, that the proportion of calculi, composed essentially of the phosphates, is much less than what it appears to be from the data above given, taken collectively ; and that those composed *entirely* of the phosphates bear even a very small proportion to those composed principally of them. Dr. Henry has stated, at Manchester, where these points were attended to, that in four instances only, out of 187, the calculus has been composed throughout of the earthy phosphates.

"The alternating calculus, or compound calculus, in distinct layers, may consist of different laminæ of any of the preceding species; hence its appearance may be much varied. Most commonly it is composed of a lithic acid, or of a mulberry nucleus, and an external crust of the fusible calculus. In some rare instances, three, or even four, species of calculi occur in the same concretion disposed in distinct concentric laminæ. A calculus is before us in which lithic acid may be seen in the centre, pure phosphate of lime next to this, then oxalate of lime, and ultimately the fusible crust enveloping the whole."

"The nuclei of urinary calculi have been divided into two kinds, viz. the primary or renal, and the secondary or vesical. The primary nuclei have been found to consist, for the most part, of lithic acid; occasionally of the oxalate of lime: sometimes, but very rarely, of cystic oxide; and still more rarely of the phosphates. In some calculi from the kidneys also, coagulated blood, or hardened mucus, have appeared to constitute the primary nucleus."

"The secondary or vesical nuclei are almost always constituted of small renal calculi, which have descended from the kidney to the bladder; or of foreign substances introduced into that organ. What should produce the first deposition of lithic acid, cystic oxide, or the phosphates in the kidney, so as to form the nuclei, is at present impossible to be satisfactorily accounted for; but in such calculi, nuclei of coagulated blood, or other animal matter, may arise from local injury, or morbid action in the secreting organs in consequence of such."

"The prostate calculus, although not of urinary origin, when discharged from the urethra is very apt from its appearance to be mistaken for a lithic concretion. It is to Dr. Wollaston that we are indebted for distinct information as to the composition of such calculi. They vary in size from a pin's head to a hazel nut: their form is more or less spheroidal, and their colour is yellowish brown. They consist of neutral phosphate of lime not distinctly stratified, and are tinged by the secretion of the prostate gland. By these properties they can readily be distinguished from calculi derived from the urine."

"The lithic acid calculi have been supposed to produce symptoms of a milder nature than those brought on by any other. This is so in most instances but not in all. I have already mentioned cases where the mulberry calculus produced no aggravated symptoms. When the calculus is composed of lithic acid, the urine is nearly of the natural colour, but more or less deep; Dr. Prout observes its specific gravity is higher than that of health; and it almost always deposits crystallized sediments, on cooling, which are much increased in quantity at those periods when the pain and irritation are

worse than common. At these times also, the crystallized sediments are not unfrequently accompanied by amorphous sediments and much mucus. The mucus, however, is by no means ordinarily so abundant in this species of calculus as in some others ; and the urine, which is usually a little turbid at first, commonly becomes, after standing some time, perfectly transparent.

“ In many instances the symptoms attending the mulberry calculus have been found severe, but so far as I can form an opinion from what I have observed of the patient's sufferings, they are not so distressing as they have been imagined to be ; and perhaps the supposed greater severity may have arisen in some degree from the weight, hardness, and tuberculated shape of the concretion.

“ When a stone has been felt in the bladder, it may be conjectured to be of this species, or of the cystic oxide, if the urine be clear and deposits neither lithic acid nor the phosphates. If no small calculi have been voided, ~~it is~~ it is probable that the calculus is then composed of the oxalate of lime ; for, when composed of the cystic oxide, small fragments of that substance are frequently passed.

“ When the calculus in the bladder is composed of the phosphates, it is sure to produce the most painful symptoms which attend this disease. All the local symptoms are severe, the constitutional symptoms occur in the most aggravated degree, and the patient's countenance denotes that his sufferings are extreme. The urine is generally voided in considerable quantity, and is of a pale whey colour, and slightly opaque ; its specific gravity is low, usually varying between 1.006, and 1.012 ;—it commonly deposits the phosphates in abundance, mixed with a large quantity of mucus ; it soon becomes putrid, and emits a most offensive smell : the smell indeed is generally very offensive when the urine is first passed from the bladder. Dr. Paris has accounted for the triple phosphates being precipitated by the urine in a state of putrefaction yielding ammonia, which substance produces the precipitation ; and this explains why the triple phosphates are so often formed in elderly people, who from some disease in the prostate gland, or other causes, cannot wholly evacuate the urine ; so that some always remains, and becoming putrid, yields much ammonia. On this subject, Mr. Brande also has observed, that if from any cause the urine becomes in the slightest degree putrid, ammonia is evolved, and the deposition of the phosphates much accelerated and increased.

“ When a patient is labouring under what has been termed a phosphatic diathesis, the system is rendered very irritable, and much derangement of the organs of digestion usually attends that state. There is much flatulence and also nausea, sometimes obstinate costiveness, sometimes a peculiar debilitating diarrhoea, and these will be found frequently alternating. The faces are ex-

tremely unnatural, being sometimes black, sometimes clay-coloured, and frequently like yeast.

“ Dr. Prout has observed, that the greater proportion of phosphatic cases, which have come under his own observation, has been distinctly traced to some injury of the back ; but frequently to one of that nature that has been quite forgotten, until the patient's attention has been called to the subject.”

“ It has been already stated, that alkalies precipitate the earthy phosphates, and that acids precipitate lithic acid : and on the knowledge of these two facts the principles of chemical treatment ultimately depend. So that when the deposition of lithic acid prevail, alkalies are considered the appropriate remedies ; and acids, particularly the muriatic, are to be had recourse to, when the earthy phosphates form the predominant deposit.

“ When the phosphate of lime, or the phosphate of ammonia and magnesia, are deposited from the urine, they form a sand of a white colour ; when the lithic acid is deposited, the sediment is more or less red. The deposition of white sand very frequently takes place when the organs of digestion are disordered. It is often produced by the free use of farinaceous diet ; it may always be abundantly formed by alkaline medicines ; and persons who habitually drink soda water, or take magnesia, are frequently voiding it. Mr. Brande remarks, that its appearance in the latter case has often led into serious errors, so that the white sand which came from a patient, to whom soda water was administered for a stone in his bladder, was considered by the patient and his medical attendant, as being part of the stone acted on by the solvent power of the medicine ; whereas the soda water was in reality doing much mischief, by giving the urine more than its usual tendency to deposit the phosphates, and consequently was augmenting the size of the calculus : the urine has a natural tendency to deposit the above-mentioned phosphates upon any extraneous body in the urinary passages, and often upon the inner coat of the bladder itself, if it be at all diseased. I have seen several instances of the last in opening diseased bladders. In one of the preparations which I now present to the audience, very many points appear on different parts of the surface of the inner coat of the bladder, where calculous matter has been deposited, and which adheres firmly to it. In another preparation, ulceration appears to have taken place over an extensive surface of the inner membrane, and the whole of the ragged surface appears to be covered with urinary concretions.

“ The use of magnesia will also occasion the deposit of the phosphates by the urine ; which has caused the white sand to be described as magnesia passing off by the urine. Where such deposition is only occasional, or follows indigestion brought on by some accidental excess, it is not perhaps of any great importance ;

but when it invariably follows meals, and is observed in the urine, not merely as a deposit on cooling, but at the time the last drops are voided, it should then be seriously attended to ; for it may create much irritation, and collect and concrete so as to form a stone, more especially in those cases where the complete evacuation of the bladder does not take place. It has been sometimes considered as the effect of an irritable bladder, when in reality it has been the cause.

“ As acid medicines are here the most useful, Professor Brande has published the result of his observations on those which are the most successful in removing the disposition, and also on those which are injurious in certain cases of calculous concretions. Each of the mineral acids has been employed ; all of them are found to be improper in cases where there is much irritation of the urinary passages, and they are apt to produce this irritation. Thus, although they are effectual in checking the formation of white sand, they require to be cautiously exhibited, and their effects watched over. These acids may be taken three times in the day, diluted with water until they become palatable : the nitric acid, from five to twenty drops ; the dilute sulphuric acid, from ten to thirty drops ; and the muriatic acid, from five to twenty drops.

“ Of these acids, the nitric is the most apt to disagree, and to occasion those symptoms of indigestion which are announced by flatulency and eructations.

“ The sulphuric acid generally admits of being longer persevered in than either of the others ; it seldom gripes or nauseates, and it may most properly be termed a tonic, as it almost always promotes the functions of the stomach, where they are sluggish or irregular.

“ The muriatic acid agrees in most cases with the stomach, but not so with the bowels, which always become more relaxed during its use, than when the other acids are employed ; this circumstance however, often recommends it ; for constipation very frequently attends the state of body which favours the formation of white sand ; and hence aperient medicines are alone adequate, in some cases, to suspend or prevent the disorder.

“ Where the mineral acids agree, they are usually very effective, and in a few days they diminish or prevent the formation of the sandy deposit ; but where they disagree, they rather increase its quantity, or they tend to the production of a mucous secretion, which envelops and is voided with the sand. This mucus, by increasing the materials of agglutination, adds to the risk of the formation of a concretion in the bladder.

“ When the mineral acids disagree with the patient, recourse may be had to the vegetable acids. The tartaric acid, or as it exists in cream of tartar, may be used in liberal doses, the former

from five to twenty grains, and of the latter from twenty to sixty grains. The cream of tartar is more apt to relax the bowels than the tartaric acid ; a circumstance which in this disease tends to its beneficial efficacy.

“ The citric acid is, on the whole, preferable to the tartaric ; it may be given in doses from five grains to half a drachm ; it rarely proves inconveniently purgative ; and is very effectual in modifying the secretion of urine. Professor Brande recommends to patients depositing sediments of the above description, not to employ medicine so much as diet ; to adopt a general acid system ; to abstain from soda water and all alkalies ; to refrain from malt liquor ; to take weak lemonade or cyder as ordinary drink at meals ; if accustomed to wine, to prefer Champagne or Claret to Madeira or Port ; to use Epsom salts dissolved much diluted with lukewarm water to prevent costiveness ; or what is more pleasant, to stir a tea-spoonful of magnesia into an occasional glass of sour lemonade ; to eat salads and acid fruits, more particularly oranges. He further states, that the carbonic acid, in cases where the other acids disagree, has sometimes been attended with beneficial results. After all, Professor Brande believes it frequently happens, that much of the benefit of mineral acids may be referred to their tonic effect ; to mending the digestion, and thus improving the general state of health. He considers that air and exercise, bark, bitters, and mineral tonics, are often successfully resorted to in urinary complaints when white sand is deposited.

“ When patients are suffering from a calculus composed of the phosphates, opium will be found useful in diminishing the unnatural irritability of the system, and should therefore be given in doses proportioned to the patient's age and the urgency of the symptoms, from one grain to three or four, twice or three times in the day ; or what is better, when the rectum will retain it, should be thrown into that gut in the form of a glyster. All remedies that act as diuretics should be carefully avoided, so should all that are of an alkaline nature ; the patient should also be prohibited from taking much fluid into his stomach. In mild incipient cases, the greatest advantage is sometimes derived from the combined use of the muriatic acid, hyosciamus, and uva ursi, conjoined with the use of alterative purgatives. Dr. Prout advises the diet should be of the mildest and most nutritious kind, and taken in very moderate quantities at a time ; and on the whole he is inclined to advise an animal diet in preference to an acescent vegetable diet. In this he differs from Professor Brande ; he is decidedly of opinion, that all watery diet, such as soups, &c. should be taken very moderately. Dr. Prout further observes, that it should be our object, in the phosphatic diathesis, as in all other cases of stone, to restore the urine as speedily as possible to its natural state ; he is sorry, however, to

be obliged to confess that he has never been able to accomplish this purpose in a single instance, even after the most fair and persevering trials of almost every remedy hitherto recommended, or that he could devise as likely to affect his purpose. The operation of lithotomy, therefore, seems to be the only alternative in this form of the disease.

“When red sand or gravel is deposited, distinction must be made between those cases in which the sand is actually voided with the urine, and those in which it is deposited after some hours by the urine, which at first was clear. The appearance of red sand, in the former case, is an alarming indication of a tendency to form calculi; in the latter, it is often a temporary symptom of indigestion.

“Caustic fixed alkalies have been used as solvents for the red sand, since it was known to consist of lithic acid more or less pure. It was soon, however, discovered, that the alkaline subcarbonates and carbonates were equally effectual in preventing the deposition, and less apt to disagree with the stomach than the pure alkalies; and as in them the lithic acid is not soluble, it became pretty evident, that the benefit of alkaline medicines was not rationally referable to their solvent powers; indeed, the caustic alkalies could never reach the urine in a caustic state, but would naturally combine with the carbonic or other acids of that secretion. Professor Brande next inquires into the kind of alkali to be preferred, and the state in which it should be exhibited. Soda, he observes, seems to be preferred to potash; he recommends it to be used in its highly carbonated state as it is sold under the name of soda water. He has, however, seen cases where soda water has been less effectual in removing the tendency to the deposition of red gravel, than a similar solution of potash; and he further observes, that this fact has been adverted to by Sir Gilbert Blane, in his paper (published in the Transactions of a Society for improving Medical and Chirurgical Knowledge) on the Effects of large Doses of the vegetable Alkali in Gravel. Sir Gilbert has there dwelt on the advantages of combining opium with this remedy, in cases attended by irritation, or other symptoms calling for the use of sedatives.

“Ammonia and subcarbonate of ammonia are of use in many cases of red gravel, and may be resorted to with advantage where symptoms of indigestion are brought on by the other alkalies, and appear to be of great service in that form of red gravel which is connected with gout.

“Magnesia has also been employed as a preventive of lithic gravel. It is not proposed by Mr. Brande as excluding the alkalies; but where potash and soda have been so long used as to disagree with the stomach, to create nausea, flatulency, a sense of

weight, pain, and other symptoms of indigestion, magnesia may be adopted with the greatest chance of success.

“Caustic alkalies may be taken in any mucilaginous vegetable infusion, as barley-water, or water-gruel : for instance, from five to sixty drops of the liquor potassæ may be taken in one dose : the average dose may be from ten to twenty drops thrice in the day. A drachm of the carbonate of potash, or of the carbonate of soda, may be dissolved in two ounces of water sweetened with honey, to which half an ounce of lemon-juice may be added, and taken during the effervescence three times in the twenty-four hours.

“From half a drachm to two drachms of the solution of ammonia of the Pharmacopœia may be taken in a sufficient quantity of water ; or from one to two grains of the subcarbonate may be given in the form of pills united with some bitter extract, two or three times in the day. Either calcined magnesia, or the subcarbonate or common magnesia, may be used ; of the calcined magnesia from ten to thirty grains may be taken at a dose, and it is preferable where the stomach is distended with wind. In most other instances, the common magnesia is to be preferred, in doses from twenty to fifty grains. These two preparations of magnesia may be given with advantage where the long employment of the alkalies may have excited flatulency and indigestion, or where they may have disagreed with the bowels. It is here right to state, that as magnesia sometimes collects in large quantities in the bowels, some mild aperient should be used to carry it off. During my attendance on the late Lord Heathfield, some pounds of magnesia passed from his bowels, although he had taken none into his stomach, nor in any other way for the preceding three months. That the alkalies do not act by any solvent power upon the gravel after it is formed, is rendered probable by the action of the carbonates and by that of magnesia, which, though incapable of dissolving lithic acid, are as effectual in checking its formation as caustic alkalies. ‘It would appear,’ says Mr. Brande, ‘that the benefit derived from these medicines must be principally ascribed to their action upon the digestive organs, where, by preventing the formation of, or neutralizing and combining with acid matter, it is probable they prevent its secretion in the kidneys’

“Alkaline remedies should be discontinued, whenever a tendency to the production of the phosphates, or white sand, appears after the formation of the red sand has been checked.

“The severity of the symptoms, when the patient labours under lithic acid diathesis, is generally in proportion as the urine is loaded with gravel or sabulous sediment ; our first attempts should therefore be to restore the urine to its natural state. In addition to the means already mentioned, the local employment of anodynes in the form of glysters may be useful. At night a pill of

hydrargyri submurias or Plummer's pill, may be taken ; and in the morning after, a purgative draught, composed, for example, of a mixture of Rochelle salts and magnesia, or subcarbonate of soda, or any other alkaline diuretic purgative. Dr. Prout recommends, that during the day a strong infusion of uva ursi, combined with hyosciamus, and the liquor potassa may be taken. If these means are persisted in, we may expect that the lithic calculus will not increase in size ; but this treatment cannot be expected to relieve the patient from those symptoms which a hard and perhaps rough extraneous substance in the bladder, by mechanical irritation, would create.

“ If from the symptoms and state of urine a calculus composed of lithate of ammonia is supposed to be formed in the bladder, recourse, Dr. Prout observes, must be had to the means recommended to be adopted in the phosphatic diathesis, and alkaline remedies must be carefully avoided; he doubts much, however, if any treatment will prevent, under these circumstances, the phosphatic diathesis from being sooner or later established. In cases of oxalate of lime and cystic oxyde calculi, the local and general use of anodynes, to relieve the immediate urgent symptoms, may be tried ; but if the patient's state admits of it, the operation of lithotomy is the only certain mode of relief.

“ In the administering of remedies for these sabulous sediments, it therefore appears, that the first object should be to ascertain the nature of the matter voided ; the next, to select the most appropriate acid or alkali ; and in either case to watch carefully over their effects, since the acids, after having removed the superabundance of the phosphates, will sometimes induce the excess of lithic acid ; and nothing is more common than the appearance of white sand during the use of alkaline medicines. In all cases of urinary sand and gravel, it is necessary to pay particular attention to the general state of the patient's health, and, along with the acid or alkaline medicines, to pursue a tonic and invigorating plan respecting the stomach.

“ When the calculi are known to exist in the bladder, if medicines are given with any view to dissolve the stone, they should be regulated by the effect acids or alkalies are known to have on the sabulous deposits ; but when either are employed, care must be taken not to carry their use too far, as a concretion of another kind to that which they were intended to dissolve may be the consequence.

“ Numerous cases describing stones as having been much acted on, if not entirely dissolved, have been given to the public ; but many of these have been founded in error, others in imposition, and none are completely favourable in their result ; for no well-authenticated case goes farther than to prove, that acid or alkaline

medicines may occasionally correct some peculiar diathesis, which from the symptoms or marks already given, may be known at the time to predominate.

“ Alkaline and acid solutions, appropriated to the particular composition of the contained calculus, have been injected by the urethra into the bladder, with the view of dissolving the stone, or reducing it into fragments which could be discharged by the natural passages : but the results, hitherto, have not been such as have afforded much encouragement either to the patient or medical attendant to persevere in this plan ; but notwithstanding this, we are not as yet justified in entirely abandoning it ; and we are surely entitled to hope that, from the judicious combination of local with general constitutional treatment being persevered in, and the means occasionally varied, much more may be done, than has as yet been effected, to relieve, without having in all cases recurrence to the operation of lithotomy, the miseries occasioned by one of the most painful diseases to which the human frame is liable.”

Reply to the Replication of the Medical Society of Louisiana, published in the Medical Repository, Vol. 7. No. 1. By JOHN BAXTER, M. D.

I much regret being under the necessity of a collision with gentlemen whom I have hitherto much respected ; but justice to my own character demands that I should throw off the imputations cast upon me.

The respectability of the sources whence the accusations originate, rather than any probability of their truth, induces me to undertake this defence ; in doing which I appeal to an enlightened tribunal, and trust to free myself from those imputations of incorrectness, mis-statement, and want of sincerity, whose origin in petulant feelings and ungenerous motives are but badly disguised in the attack ; and to show that what misrepresentations do exist, were made by those arrayed against me.—To proceed, however, to the several counts of my medical indictment—

As no particulars are given in the first article, of the me-

teorological errors, but a mere assertion made, that they do not coincide with those of M. Lafon, which have received the stamp of infallibility from the society, they will not be farther noticed than by my simple assertion, that without pretending to infallibility, mine were noted by myself, and I continue to believe them correct.

In the same article I am made to say, that the first case occurred on the 20th of June and the 2nd on the 30th. A reference to my memoir will show, that so far from having asserted this, it will be found on the 2nd and 5th pages that I have stated the fever to have existed sporadically before my arrival, and even one case as early as March; those on the 29th and 30th being the two first that *came into my hands*.

In stating the *fact* of the suspension of the ravages of the epidemic I did not depend upon my own observations alone, but upon those around me, and especially on the information derived from Dr. Mercer, of whom, in the paper criticised, I expressed a high opinion; and if I have depended too much upon foreign sources for my facts, and thus errors have crept into *my* statements they should not implicate my veracity. I have not however affirmed, as stated, that the disease was suspended and did not increase during *September*, but on the contrary have said (page 2) that it was then at its maximum.

In article 2nd, my observation respecting the black vomit is said to be proved unfounded, because I was taken ill immediately after my arrival. The incorrectness of this assertion will be more particularly noticed in the last article, and its deduction consequently disproved.

In article 3rd it is asserted that the averaged number of deaths, as ascertained by the public records, was in September 19 per day. It being stated in my paper, from the authority of the old grave-digger, to have been from 22 to 25 and not 25 in full, as the report has mis-stated. The inconsiderable difference between the two averages does not merit a

notice, did it not discover a disposition to magnify trifling errors and evince the state of mind under which the replication was drawn up ; neither does this part of my statement, or that respecting the mortality among the natives, support the charge of a too affirmative complexion, and positive character of my statement, as I gave the source of my information in the former, and the circumstances whence I drew my conclusions in the latter ; but I am unfortunate from my distant situation, in not having the same advantages with my opponents, of being on the spot where the occurrences took place.

In article 4th my statements are impugned in four different parts, with a greater want of correct information than in any other part of the report. To the counter-statement of the Resident Physician respecting the secondary attack of the Irish physician, I have to oppose my distinct recollection of the circumstances under which he informed me of his first attack, and remember it was while walking with him to see a patient of mine, whom I invited him to visit with me. His assertions were plain, and could not have been mistaken by me ; but such is the bias of the mind from long cherished opinions, that any fact that militates against favourite theories is often smothered at the expence of truth.

On the source whence the reporters derived their information of the non-existence of yellow fever in the East Indies I will not attempt to pronounce, but certainly should have supposed there existed sufficient information in the society to have suppressed the discovery of ignorance on a question, which, at least, has only been considered *dubious* by some of the profession ; for, besides the evidence frequently received from those engaged in commerce with those parts, the writers on the subject would have furnished them with an appropriate conclusion.*

* See Bancroft's Sequel to an Essay on Yellow Fever—Johnson on Hot Climates. Edinburgh Journal of Med. and Surg., 1817-18.

It is further questioned, if the other case were yellow fever, but only bilious remittent. That it was considered by Dr. Mercer, with whom I consulted, as a case of what we usually called yellow fever I feel prepared to assert, as I recollect distinctly putting the question to him on the deck of the vessel (*Gustavus*) after visiting the patient, if it were a case of yellow fever? and was answered in the affirmative. From what I afterwards saw of this epidemic I cannot doubt it was so; perhaps a somewhat mild case or a high grade of bilious remittent, which is what I have contended for, and from which I have been not a little confirmed in the belief of the *unity* of these diseases.

I know not what excitement might have been, or was produced in the city by the occurrence of six cases in one place, but I do know that there were more than six persons sick with bilious complaints at the hotel at which I stopped, and I observed not a little alarm with many with whom I conversed at the time. That I averred having witnessed the six cases is not true. My information was derived from their attendants, and not a small part from Dr. Mercer himself. That there were malignant cases of bilious fever has not been denied; but if this, as well as what is stated in article 5th were incorrect from erroneous information, and depending too much on foreign sources, it does not warrant that acrimony and ungenerous spirit which descend to a formal implication of moral rectitude. But on this head it must be granted, that the society have the best means to correct information, as being on the ground, are enabled to obtain that evidence which *ought* to be conclusive though it should be such as suits their purpose; whereas my distant situation, and as many from whom I obtained my information are scattered I know not where, many being dead, disable me from meeting my adversaries with such proofs as I otherwise might produce.

In article 6th it is denied, that the bilious remittent is endemic at New-Orleans the whole year, as I have asserted, but only during the summer months. Will the gentlemen of the society deny that they have had cases of that fever at all seasons of the year? Do no cases occur during the winter months? Does it not exist sporadically at that time? Were there no cases in March, 1819?—But perhaps I am in error in supposing, that the reporters apply the same signification to the term endemic, that I attach to it. They perhaps confound the term with epidemic: if so, a reference to their lexicon, or any respectable medical authority on the subject, will show though perhaps not convince them, that it is not incongruous with sporadic; being diseases engendered by the nature of the territory, food, customs, or produced by other unknown causes—endemics being permanent in a people, and peculiar to a country.* This I trust will be sufficient to free me, from the imputation of intentionally misrepresenting the salubrity of that city.

In what part of my paper I have declared, as asserted in the 7th article, that the fever terminated favourably generally when venesection was used, the reporters would be at a loss to point out. On the contrary, I have said it frequently failed of success, (pages 11 and 12) neither have I said that no cases recovered without it, though I neither saw nor heard of any—this *would* have been to assume an *unwarranted positiveness*.

How far my misrepresentation of symptoms requires an exposure we are not informed, since not one word is said, or any mention made of symptoms, and therefore I shall not notice that unjust observation farther.

For the characters of Drs. Mercer and Randolph I have the greatest respect. The attentions of the former will not soon be effaced from my memory, and I can in no way ac-

* See Dictionnaire des Sciences Medicales.

count for the statements of these gentlemen, if they made such as are given in this report. But I can by no means pass them by without giving them a firm denial, and I am constrained to say, that if those gentlemen will refer to their memories, unless they are very treacherous, they must know they have asserted what is incorrect.

As I have already stated, Dr. Mercer saw my first patient with me, and attended in consultation and pronounced him, as also the second mate of a brig, named Weeks, sick with yellow fever. This last he saw with me only once. What dependence can be placed on the assertions made by these gentlemen that they *know* I did not attend any patients with that disease unless they were constantly with me? which could not be the case, and attend to their own practice. They both know I visited them at their offices, consequently could not be *very* sick all summer.—They both know I frequently walked through the city. Dr. Mercer knows I often borrowed books of him to carry to my rooms. Dr. Randolph knows I surrendered one patient, sick with the fever, into his charge. Dr. Mercer must know, that so far from being taken sick *shortly* after my arrival, I was not taken down with the fever until a short time (19 days) before my departure in October. I was not otherwise unwell, (never confined five days) except with a chronic malady, under which I laboured, and for which I took my voyage.

If I have been too positive in my communication it has been from relying too much on the information derived from others, and not from any intention to misrepresent. How far this has been the case with my opponents it does not become me to pronounce. That the offended pride, and motives of interest of some of the gentlemen are more or less concerned, will be apparent to every one; from my not having allowed them, perhaps, all the merit they would claim, or their city all the paradisial salubrity which they would have us believe it possesses.

It is deeply to be regretted that the progress of science should be so often impeded by petty disputes, which contribute neither to individual prosperity, or human happiness.

COLLECTANEA CLINICA.

A Case of Aphonia. By WILLIAM HANDY, M. D.

Monday 9th October.

At 2 P. M. I was requested to visit the daughter of Mr. J. W. O. a child two years and an half old, of a slender constitution, of great vivacity and intelligence. She had been feverish a few days before, and took yesterday some calomel and jalap, which operated as a mild cathartic. She slept the last night in the same bed with her parents, and in so far as they know, was free from complaint, except slight fever. On rising this morning, there was observed in her a difficulty or suspension of speech, a faculty she had previously used with freedom and correctness. The father, when at breakfast, finding himself deprived of the accustomed pleasure of her engaging prattle, threatened to punish her in case she did not speak, believing her silence to be feigned. His menaces excited the strongest efforts on the part of the child, but feeling her inability to gratify him, she burst into tears; the power of speech having totally forsaken her. In this situation I saw her, with no visible marks of disease, except an occasional fixtured expression, accompanied by a languid expression of the eyes, unusual in itself, and not less difficult to describe. She is cheerful, and manifests a fondness for play in her sports with a brother a little older than herself. In so far as they admit of examination, the assemblage of cartilages forming the larynx, the ligaments and muscular fibres connected with, and subservient to this principal organ of the voice, are unaltered, and the voice itself, when excited to laughter

or crying, is natural and unchanged. Her appetite is good. In chewing and swallowing her food there appears to be no difficulty; but on receiving it, the mouth is opened much wider than is customary.

Sumat statim pulv; purgant: gr: x.

Post paulo capiat mist: sequent: cochl: mag: et repetatur omni hora ad alvi solutionem.

R. Infus: rad: spigel: Maryland:—Rad: valerian: sylvestris:—Fol sennæ et rhei: a a 3iv. Syrup: rham: cathart: 3vi. m.

In the evening the following embrocation was prescribed for the throat.

R. Camphoræ 3i. Alcohol? Aq: ammon: a a 3i. Ol: succin: 3i. Ol: olivar: 3iss. Tinct: opii 3ss. m.

Tuesday 10th, 9 A. M.

Pulse a little frequent, but of good strength. Starts often while asleep. Has had several loose passages since last evening. When questioned, makes strong efforts, but has not the ability to speak. Is playful and takes her food freely.

R. Pulv: rad: ipecacuan: gr: vi. Antim: tartaris: gr: i. Hydrarg: submur: gr: ii. tere simul, et sumat statim.

11 A. M. Emetic has operated well. Expression of the eyes more natural. No other change.

Applicetur emplastrum epispasticum faucibus externis. Illinatur maxilla inferior embrocatione heri præscripta, et tegatur panno laneo.

Misturæ vermifugæ purgantis unciis duabus adde tincturæ opii guttas viginti, ess: menth: pip: guttas viii. sumat cochl: parv: subinde.

9 P. M. The plaster has operated uniformly and fully, and the blister discharges copiously. Pulse of usual frequency and strength. Heat moderate. Skin moist. Countenance placid. Receives her food as usual. Still starts occasionally.

R. Camphor: gr: xii. solve in tinct: rhei comp: 3i. adde Tinct: valerian: ammon: 3iii. Tinctur: opii 3ss. Mucil: gum: Arabic 3i. Æther: sulphur: 3iss. m. capiat cochl: parv: statim, et repetatur quater per hanc noctem.

Wednesday 11th.

9 A. M. Has rested well. Blister discharges freely. Disability to speak continues. Recommend that she shall eat pepper grass and water-cresses, that horse-radish be added to her animal food, and that she be taken to ride.

9 P. M. It has not been convenient for her to ride this day.

Repetatur mistura purgans ut die Lunæ præscriptum fuit. Applicetur hora decima emplastrum vesicatorium nuchæ et inter scapulas.

Thursday 12th.

9 A. M. Was met at the door by her brother, who in a transport of joy informed me that his sister had spoken. The information is confirmed by the delighted mother, who says that her daughter, to her unspeakable comfort, has several times this morning accented the syllable Ma. Having intimated by signs that she wished to have given to her her boots, which were within her view, but out of her reach, it was told her that she should have them on the condition that she would say boot. After pressing her repeatedly with earnestness, she pronounced the word with difficulty.

The plaster on the nape of the neck, and between the shoulders has drawn well, and both blisters discharge freely. Bowels have not been open since yesterday morning, the aperient medicine having been omitted through mistake. Appetite good. Is uncommonly cheerful, and makes frequent exertions to speak.

Sumat infusum ut heri præscriptum.

8 P. M. After my morning visit her speech gradually returned. She rode several miles ; was delighted with the exercise and change of scene, and ate heartily on her return. Immediately on my seeing her this evening, she, at the request of her father, sung a song with judgment and with taste.

Medicine has operated well. Blistered parts discharge freely.

Omittantur medicamenta.

Friday 13th.

Continues in the full and free exercise of the faculty of speech.

A Case of Empyema. By W. HANDY, M. D.

On the 6th of February, 1815, I was requested to visit Mr. H. T., a native of Scotland, about thirty-five years of age, by trade a weaver, and a person of intemperate habits. He had fever, cough, oppressed breathing, and other symptoms of congestion of the lungs. His legs and feet were œdematous, and a separation of the muscles had left the bones of one of his toes entirely exposed. Body costive; urine in usual quantity. Prescribed the pulvis purgans, a warm plaster to the breast, and night and morning a pill, composed of calomel, opium, squill, and balsam of Peru.

10th February. Pulse 112 and feeble; cough and oppression continue; skin and tongue dry; body open.

R. Pulv: ipecac : compos : 3ss.

Antimon : tartarisat : gr. iss.

Camphoræ gr. vi. Balsam. sulph. anisat. quod satis sit; misce fiant pilulæ, xii. Capiat pilulas tres hora somni, et repetantur post horas duas nisi prius sudaverit.

11th February. Slight diaphoresis after the second dose of the pills, which still continues. Cough less severe. In other respects as yesterday. Repetantur pilulæ vespere.

12th. Skin more dry. Pulse 112. Cough the same. No stool since the 10th.

Capiat statim pulv : purg : 3ss.

Evening. Bowels open. Pulse 116. Skin dry.

R. Aq : ammon : acetat : 3iv. Spirit : æth : nitros : 3ii. m. Sumat. 3ss. 3tia quaque hora.

13th. Pulse 112, and feeble. Skin moist. Coughs less.

On examination there appears a tumour of considerable size on the left side of the chest.

Applicetur emplastrum epispasticum pectoris tumori.

16th. Opened the tumour, when about two pounds of pus were discharged. Pulse 120 and feeble. Body natural. Directed a strong decoction of Peruvian bark to be taken with wine freely, and wine sangree for his ordinary drink. Friction of the legs with ammoniated and camphorated liniment was used from the 16th of February until the 28th of March, when, being still œdematous, cotton rollers were also applied. In the mean time, under the use of stimulating dressings, a perfect adhesion took place between the muscles and bones of the diseased toe. During the same period Peruvian bark and wine, and a generous diet being continued, the cough and other pectoral complaints abated. The purulent discharge continued, flowing evidently from the cavity of the chest. The same course of treatment was followed through the months of April and May. His appetite and strength increased, and the opening in the side closed, unattended by any aggravation or return of the affection of the chest; and he was able to go abroad.

There had been no discharge from the side for about two months, when suddenly in the night of the 8th of July, pus in great quantity burst from the place of the original opening. He had from the 4th freely indulged in the use of ardent spirits, and for two or three days had severe cough, fever, and oppression at the lungs. From this time the quantity of pus gradually diminished, and on the 24th of July the external opening had nearly closed. About the last mentioned date, he absented himself from his lodgings, and was two or three days and nights in a constant scene of riot and intoxication; and when he slept it was on a bare floor. On the 29th his fever and cough returned, with a sense of great anxiety and oppression, which encreased with rapidity and violence. The ulcer was dressed twice a day with an œs-

charotic, for the purpose of enlarging as speedily as possible the communication with the chest.

On the 2d of August his pulses were 120 in a minute, feeble and intermitting, his extremities cold, and body universally covered with a clammy sweat. His debility was great, his countenance sunk and ghastly, his cough very frequent, and when most violent, produced a whistling sound at the opening in the left side of the chest, which caused him the utmost alarm. About four inches above the same point, on pressure with the hand, a fluid could be distinctly felt, and moved from place to place. A cough mixture was prescribed, and in aid of it, as a mucilaginous drink, a decoction of lichen Islandicus. During that night a communication with the cavity of the thorax was again opened, and about a pint of pus thrown out. In the afternoon of the following day he arose and walked about twenty yards from his lodgings, where he sat an hour under the cover of a sawpit. Continued the decoction of Peruvian bark and of lichen, with an allowance of wine,

6th of August. Pulse 96. Discharge diminished. General health improving. Dress the opening with ointment of nitrate of mercury.

7th. Symptoms nearly as yesterday. Pulse about 84. Discharge encreased.

10th. Has gained strength since the 7th. Appetite improved. Pulse 76. Functions natural. Free discharge from the side. Continue his medicines and wine. To take a pint of milk, warm from the cow every morning, and to use moderate exercise.

11. Pulse 88 and feeble. Discharge encreased from a direction transversely across the chest. Was intoxicated yesterday with wine. Appetite much impaired.

14th. Has had slight diarrhœa during the last three days.

29th. No variation of symptoms since the 14th. Pulse of natural frequency and strength. The bark and cows milk have been taken regularly.

Sept. 2d. Has for several days past drank immoderately of ardent spirits. Pulse 120 and feeble. Complains of oppression at the lungs, and pain on the left shoulder. Discharge much diminished.

R. Aq. fontis 3vi.—Sp : æth : nitros: 3iii.—Spirit : cornu cervi 3iv.—Essent : menth : pip : gutt : viii.—m. capt. 3ss. subinde.

4th. Pulse 96, of better strength. Copious discharge from the side, which commenced last night. Less oppression. Skin natural. Body open. To continue the bark and wine.

7th. Pulse in a recumbent posture 84, sitting 100 in a minute, of good strength. Appetite better. Walked out to day.

Repetantur remedia et diæta.

10th. Intoxicated last night and this morning with wine and ardent spirits. Pulse yesterday 80, and the discharge copious and purulent. Pulse to day 100. Discharge less.

12th. Pulse 96 and full. Still in a state of inebriety. Discharge great. In other respects he is free from complaint.

19th. Has been most of the time since the 12th in a state of intoxication. Pulse 96 and feeble. Discharge lessened.

26th. But little change since the 19th. Pulse 92 to 96 this day. Complains of weakness and tremor, the effects of perpetual drunkenness.

28th. Has taken but little strong drink since the 26th.—Diarrhœa supervened yesterday. Pulse 96 and feeble.—Discharge much abated.

To have a chalk mixture with laudanum.

29th. Pulse in the morning 100 and small. Diarrhœa ceased. Discharge less. Pulse in the evening 88, and more full.—Has indulged in drinking rum through the day.

3d of October. Pulse has varied the three last days past from 88 to 100.

4th. Pulse 96 and feeble. Diarrhœa returned. Takes wine freely, but little stronger drink.

Repeat the chalk mixture with laudanum.

5th. Pulse 88. Much diarrhœa through the night. Discharge from the side increased.

Repeat the chalk mixture with tincture of kino and opium, and essence of peppermint.

6th. Pulse 100 to 112, and feeble. Diarrhœa lessened, but still troublesome.

Habeat haustum anodynum hora somni cum tinctur: opii gutt: L. Repetatur mistura cretacea.

7th. Pulse 88, and stronger. Continuatur mistur cretacea; haustus anodynus h.s. cum tinctur: opii gutt: L.

8th. Diarrhœa abated, Other symptoms as yesterday.

11th. Pulse 96 and feeble. Moderate discharge from the side. Some diarrhœa still. General health improved.

Repetatur mistura e creta.

13th. Pulse 104 and weak. More diarrhœa.

R. Opii gr: xv solve in tinctur: ejusdem 3iii.—tinctur: kino 3ss. Adde mistur: cretac: 3xiv.—Ess: menth: pip: 3i—Capiat 3ss post singulas sedes liquidas.

Nov. 1st. From the 13th ult. to this time there has been no change except that the diarrhœa has gradually disappeared, and the discharge from the side diminished.

Continue the bark and wine.

27th. Discharge nearly ceased. Has some cough, and says that his expectoration is offensive. Pulse of natural strength and frequency. Appetite good.

Dec. 1st. Discharge again increased. In other respects in good health.

20th. Slight discharge remains.

Jan. 15th, 1816. No change since the 20th December.

Feb. 24th. Very little discharge from the side. In other respects free from complaint.

A case of mortification of the cheek, in which Pyrolignous Acid was employed with advantage. By SAMUEL W. MOORE, M. D.

To the Editors of the Medical Repository.

In compliance with your request, I send you an account of the use which I sometime since made of pyrolignous acid, in a case of mortification of the cheek, in which it was employed partly with the hope of arresting the progress of the mortification, but principally with the view of correcting the fœtor attendant on it; the last of which intentions it completely fulfilled.

Having no knowledge of its employment as a medical agent upon any former occasion, an account of its effects, I think, may not be considered altogether uninteresting. As mortification occurred subsequently to inflammation excited by mercurial action, I shall in the first place give, as briefly as I can, a statement of the case, the circumstances of which will, I think, be considered as having fully justified the extent to which the use of mercury was carried.

A little girl, aged nine years, was attacked about the end of October last by fever, attended with violent pain in the head and constipated bowels, which were followed by a train of symptoms, clearly indicating the existence of hydrocephalus; in the course of which disease the pupils became dilated, the senses of sight and hearing much impaired, and at times apparently quite destroyed.

The pain in the head was but little relieved by bleeding, and for twelve days the bowels continued obstinately constipated, notwithstanding the free use of the most active cathartic medicines and purgative glysters, which were employed from the commencement of the attack.

During this time eight or ten doses of calomel, of from eight to ten grains were given, either alone or united with other active cathartics; but for ten days neither bleeding nor

cathartics made much impression on the disease, when it was thought advisable to give small doses of calomel every few hours until the system became affected by it, unless, before that took place, the bowels should be freely moved, to effect which a solution of Epsom salt in an infusion of senna, was also given at short intervals.

This course was persevered in for two days, when the mouth became affected, and the bowels began immediately to yield. The evacuations were of that kind described by Dr. Cheyne as consisting of "a dark green gelatinous mass, with an oily looking surface," which, he observes, are seldom seen in any other disease; and he further states, that "when such stools once appear, they generally continue till the disease is terminated by the death of the patient."

In the present instance this was not the case; for three days the evacuations continued to consist almost wholly of this dark green slimy matter, after which time they assumed a more healthy appearance. As soon as the bowels were unloaded of this morbid matter, the head became much relieved, and the brain soon began again to perform its proper functions. During this time, the left cheek had become much swollen, inflamed and painful; the ptyalism was moderate, and the mouth generally was not very sore, but the pain and swelling of the cheek continued for some days to increase, notwithstanding all means made use of for its relief. The child at this time, from the severity of her disease, and the small quantity of food she had taken from its commencement, was reduced to a mere skeleton.* The powers of life were now so much exhausted, that there did not appear to

* It may be proper to state, that, at the period of her last attack, she was just recovering from an illness somewhat resembling this last, though less severe, which had commenced with epilepsy, after which she remained insensible for two or three hours; when fever appeared, attended with head-ache, from which she had recovered, but still remained feeble until she was again taken sick with her last disease.

be sufficient vigour remaining in the system to carry on the circulation in the diseased part until suppuration could take place, and at this time, when all hydrocephalic symptoms had disappeared, mortification commenced in the inflamed cheek. A black spot as large as a six-penny piece, appeared about an inch from the angle of the mouth, which soon increased to the size of a dollar destroying all the parts between it and the mouth. The dead matter soon melted down into a mass of putrefaction, which rendered the atmosphere of the apartment so excessively offensive, that the nurse found it impossible, without serious inconvenience, to pay the child those attentions her situation demanded. A fermenting poultice had been directed in the first instance, but they found difficulty in keeping it applied. I had before that time some experience of the powerfully antiseptic properties of the pyrolignous acid, and it then occurred to me to make a trial of its effect. I immediately sent them a few ounces of the acid, with directions to wet lint with it, and apply it to the mortified part as often as it might be found necessary to correct the fetid odour. On visiting the child in two hours after its application, I was much gratified on finding it had produced the desired effect. There was not the least unpleasant odour to be perceived on the closest examination. The nurse expressed the utmost astonishment at the effect it had produced, in correcting, so immediately on its application, all offensive smell.

The condition of the child, who for some time before this application had refused to take either food or medicine, was now considered entirely hopeless, but her miserable existence was prolonged for eight days after the employment of the acid, which it was found necessary to continue as long as she lived. Her appetite at this time returned, and became so voracious, that notwithstanding she was almost constantly eating, it could scarcely be satisfied.

She exhibited some days previous to her death, a very

shocking appearance, for, although the mortification had ceased to extend for several days before that event occurred, a corroding ulcer destroyed the surrounding parts to great extent, including the whole of the left cheek, part of the nose; one half of the upper, and part of the under lip. The upper teeth of that side were also lost, from a destruction of the alveolar processes of the superior maxilla, the outer wall of the maxillary sinus was likewise destroyed, exposing the whole of that cavity to view. Notwithstanding which, she continued until the night before her death to eat ravenously, when to assist her in so doing, she was obliged to place one hand upon the side of her face to close the opening into her mouth, and thus prevent the food from falling out.

In this case, the pyrolignous acid, by destroying entirely all fetor, contributed directly to the comfort of the child, and it did so indirectly, by enabling the attendants with comparatively little inconvenience, to perform faithfully their duty, which, without it, they assured me could not have been done.

I have in one case since, made use of pyrolignous acid to correct the fœtor of the discharge from a cancerous breast, which it did effectually, by laying a cloth wet with the acid, over the ordinary dressing. It may in this way, be used frequently with great advantage, particularly in warm weather. I had no intention when I began, to detain you with so long an account of the case in which I first employed this remedy, but I did not well know how to curtail it.

INTELLIGENCE.

An Extraordinary Instance of Precocity.

THE animal system presents two distinct orders of phenomena; namely, malconformations, and preternatural developments of particular organs. The former merely excite our

pity for the unfortunate objects, whilst the latter are calculated to impress the imagination with the reality of ancient fable and call to mind the history of the Titans and the labours of Hercules as prodigies of actual occurrence. The devout simpleton, on the other hand, views these objects with another feeling; he prostrates himself in worship before the deformity in which he recognises the long frock and bald head of a Capuchin monk.

An instance of extraordinary development has recently come under the observation of the medical faculty of Paris, which is worthy of notice, as being an example of manhood at an age which we would suppose to be that of a child scarcely out of its swaddling-clothes. We have viewed with astonishment, savans, artists, and profound mathematicians, in the persons of individuals who had scarcely attained their tenth year; but we have here a still greater phenomenon—a truly infant Hercules.

Jacques-Aime Savin, the subject of these remarks, was born at Montmorillon, department of Vienna, on the 20th of October, 1817, and is at this time (November, 1820) 3 feet 3 inches in height. His mother is of an ordinary complexion, and his father of a middle stature. The child has a pleasing countenance, and from his size would appear to be seven or eight years of age; his head is small, his body muscular, and his skin granulous and firm like that of an adult. His arms are covered with brown hair, and his cheeks and chin with a perfect black beard; and what is still more astonishing, his genital organs are in size and appearance those of a man of twenty years, and this premature development is accompanied with unequivocal signs of virility.

It was not till the age of eighteen months that this surprising revolution took place; and if we except an unusually advanced state of ossification at birth, there was no previous indication of it. Within the last two months, this little Alcides has been observed to have grown two inches. He can

now lift a weight of 70 to 90 pounds ; his voice is strong, and his intellectual faculties are those of a child of his age. He pronounces his words in an imperfect manner ; his amusements and inclinations are all childish ; but he is of a serious disposition, seldom mingles with his young companions, and when he does, it is only for the sake of displaying his strength. His delight is to prove the force of his arms ; he overturns every thing, however heavy, and it is difficult to force open his hand, or release one's self from his grasp.

Respecting the age of this child there cannot be the least doubt ; it is attested by the local authorities, by the public registers, and by Dr. Desroëaux of Montmorillon, and Dr. Maury of Poitiers, who have laid the fact before the medical faculty.

(*Tablettes Universelles.*)

ELECTRICITY.

Singular Electrical Phenomena observed in Switzerland.—On the 3d of May, 1821, and when Mr. Allamand, jun. was walking from Fleurier to Moutiers, in the canton of Neuchatel, he was overtaken by a storm of thunder and lightning. Having closed his umbrella, lest its metallic point should attract the lightning, he perceived a band of light along the rim of his hat. Upon passing his hand over the luminous train, it became still more luminous, and the whole interior of his hand shone like a polished metal when it reflects a bright light. Finding that there was no danger in making this experiment, he repeated it 15 or 20 times. This light was not attended with any crackling noise or electrical smell ; it lasted only for a short time, and always resembled a brilliant varnish applied to the surface of his hand.

M. Allamand afterwards perceived another, but less lively light upon the polished surface of the cross of his umbrella,

Upon moving the slide over the luminous part, it became more brilliant, and in case of any accident he threw it from him. M. Allamand now tried to restore the luminous appearance to the rim of his hat, by rubbing it with the sleeve of his coat, but he could not succeed, which he attributed to the tall poplars which grew on the side of the road having attracted the electricity from the atmosphere. When he recovered his umbrella, he saw luminous points at the extremities of the whalebone radii, which are terminated with a piece of metal.

[*Ed. Philos. Jour.*

Use of Nitrate of Silver in Medicine.

The *Giornale di Fisica*, tom. xi, contains, at p. 355, a paper by Il C. Sementini, on the use of nitrate of silver in cases of epilepsy. After remarking on the difficulty which occurs in treating such cases, and the good effects which have been observed in using the nitrate of silver, and its superiority in this respect over all other remedies, both as to the effect it produces, and the little inconvenience it causes; the Cavalier states, that to secure the good effects belonging to it, the nitrate of silver should be well triturated with the vegetable extract, in combination with which it is given; that the first doses should be small, and the quantity gradually increased to six or eight grains, or even more, in a day; that the use should not be continued very long together; and that the patient should keep out of the action of light. The latter precaution is necessary, to prevent the discoloration of the skin, which sometimes happens after a long and copious use of this remedy. The precaution, however, only regards avoiding the meridian sun-light.

It frequently happens, in the use of this medicine, that a species of cutaneous eruption, consisting of small pustules, occurs. This may be regarded as a certain proof of the good effects of the medicine.

In the early part of this paper, Il C. Sementini, in endeavouring to remove the impression existing against nitrate of silver, because of its poisonous qualities, remarks, that being mixed with vegetable extract, it is not really the salt, but the oxide, that is given; and, therefore, the observations of M. Orfila, on the nitrate as a poison, have nothing to do with the power of the remedy. At the same time, as an argument for using the nitrate in place of the oxide, it is remarked, that at the moment of decomposition a combination is, probably, effected between the extract and the oxide; and that actually the salt is most efficacious.

Being assured of the use of the nitrate of silver in epileptic affections, and reasoning upon its tonic effect, Il C. Sementini was induced to try its powers as a remedy in cases of paralysis. The first instance quoted is of a gilder, who, probably from the fumes of mercury, had become very paralytic. An eighth of a grain of nitrate of silver was prescribed at first, but the dose was increased every other day: by the time that three grains were taken the good effects were evident, and in twenty days more the man was perfectly restored. In another instance, every part of the body and limbs were paralyzed but the head. A small quantity was given at first, but it was increased to eight grains per day, and it effected a cure.

Three other instances are then adduced, in all of which cures were effected: and the Cavalier expresses his hopes, that, in the hands of other medical men, it will be found as effective and as important as in his own.—*Lon. Med. Repos.*

Malformation of the Œsophagus.

DR. MARTIN of Aubagne, at a late sitting of the Royal Society of Medicine of Marseilles, related an instance of malformation of the œsophagus. The infant refused from birth every kind of nourishment, which on being forced down, was immediately rejected by vomiting. The child

died in thirty-six hours. On opening the body after death, the œsophagus was found to form a cul de sac, terminating a little below the pharynx, and the communication to the stomach was by a canal, of the calibre of a small writing quill, which opened into the trachea at its bifurcation. This case proves incontestably, if any proof were still demanded, that the fœtus is nourished by the placenta alone and that the digestive functions are not exerted till after birth.

Bronchocele Cured by Iodine.

DR. GIMELLE of the Military Hospital of Guards, Paris, has published an account of the successful employment of iodine in several cases of bronchocele, and also in a few instances of herpetic eruptions.

Aqua Ammoniac a Remedy for Intoxication.

DR. PORTER of Germany, states that a tea-spoonful of aqua ammoniac in a glass of water, will counteract the inebriating effects of fermented and distilled liquors.

Spontaneous Combustion.

DR. CHARPENTIER of Guerigny, has read before the Royal Society of Medicine of Marseilles two interesting cases of spontaneous combustion, occurring during extreme cold weather in two aged females, both addicted to intoxication, one from the excessive use of vinous liquors, the other of Cologne water.

*State of Medicine in Turkey.**

I now proceed to give you a faithful account of the state of medical science in Natolia, and I vouch for its authenticity, whether it be conformable or not to the narrative of travellers; for I shall relate only what came under my own observation.

The following are the towns I have visited; Ismith, (Nicodemia) Castan Bolou, Josia, Marsovan, Amasia, Tocat, Sivas, (Sebastia) Eyin, Madain, Arabkier, Carpouth, Angora, and Brusa.

In Nicodemia there are four or five Greeks of the isles, who attired in large trowsers, and with hats upon their heads, practice physic in the same style as their brethren in Constantinople, with whom you are already acquainted. They are for the most part so ignorant, that they can neither read nor write. Their pharmacopœia consists of a few articles which they obtain from the Jewish apothecaries in the capital; and a syringe suspended over the door of their apartment in a caravansary, serves the double purpose of a sign and a diploma. At the time of my visit, there was in this city a man in the Armenian costume, with a grey calpack and yellow slippers, who, by virtue of his dress, obtained a little more custom, but in other respects resembled the rest of the fraternity.

In Caston Bolou there were two physicians; one of the city and the other of the Pacha. The former deals in amadou,† and old iron, as well as medicines; and the latter is a Greek, with whom I became acquainted six years ago, at Magnesia, where he then pursued the innocent avocation of conciliator of souls.

* For a previous account of the state of medical science in Constantinople, Vide Vol. VI N. S. p. 474.

† A kind of tinder manufactured from a species of fungus.

The physician of Josia is a Jew, and the only person of that persuasion in the place. Besides medicines he vends amadou, salt fish, parched peas, and raisins. He has not much practice as a doctor, that business being engrossed by five or six old women, who only call him in cases of exigency, but are notwithstanding on very good terms with him, for they purchase at his shop their medicines, amadou, matches, &c.

In Marsovan there is no physician; the medical faculty consisting entirely of women. Medicines and thread are to be purchased at the same place, that is, at the mercer's; and the rich generally keep in their houses a small supply of cream of tartar, rhubarb, Peruvian bark, and Hoffman's anodyne.

The city of Amasia has three doctors, one a Jew, and the other two Armenians of Dearbekir. They keep a stock of medicines, and in case they want any particular article, they apply to the mercers, who supply it, or furnish them with an order upon the physicians of Angora.

In Tocat there is an Italian physician, a young man not deficient in talents, who studied his profession in his own country, and in 1812 was under surgeon's mate in a regiment of artillery. He understands his business, and has effected several happy cures in the city and environs, whither he is called for thirty leagues round. The wealthiest Armenian families have furnished him with a pension for six years, and married him to a very pretty girl, in order to render him a permanent resident.

Sebastia has been for some time the residence of a practitioner from Dalmatia, who has assumed the turban, and is now in the service of Jélaleddin Pacha. The actual Pacha of Sebastia has no physician, and the profession of medicine in this city is wholly exercised by two Armenians of Dearbekir, and a number of old women. Whenever the Pacha or any other rich person is taken severely ill, the physician of

Tocat is sent for ; that city being only 18 leagues from Sebastia.

Almost every one of the Pachas of Madain has his own physician, who is looked upon as the Doctor of Madain, Eyin, Arabkier, and Carpouth. There are besides in each of these places, two Armenians of Dearbekir, and many women who profess the healing art. Medicines are sold by the mercers.

There are three medical practitioners in Angora ; these are, a Frenchman who became a Doctor almost in the same way as Gregory in the farce, and who, having married very advantageously, has resided in the city for more than thirty years ; a Greek, who may be considered a match for those I have spoken of ; and lastly, a native, the son of a Roman doctor, who sent him when a child to Rome for his education ; but the premature death of his good father having prevented the continuance of his studies, at the very time when they began to be useful to him, he returned to his native country at the age of 19, completely wedded, unfortunately, to the Brunonian system. He has talents, but as his whole library consists of the works of Weikard, it may be readily conceived what kind of a physician he must be.

In Brusa there are many Doctors ; the most distinguished of which are, an Italian bankrupt merchant, who follows the medical profession for want of a better employment ; and a Greek, formerly a leather belt manufacturer. All the rest are subservient to these head men. Although from the proximity of Brusa to Constantinople, the number and appearance of its physicians are constantly varying, yet their quality ever remains the same.

Considering the extent of this country, which is upwards of 300 leagues long, and at least 100 broad, has a population of many million souls, and is overspread with cities, towns, and a vast number of villages more or less considerable, it appears surprising to an European, that there are so few regularly educated physicians in it. Coming to Constantinople,

and observing how many well instructed practitioners live there in a most wretched condition, scarcely able to procure the common necessities of life, a foreigner might be astonished that no one had ever been struck with the idea of trying his fortune in this country, which displays a field so wide and apparently so fruitful; but when he had travelled over it, his surprise would cease or rather would be excited in another way. Instead of wondering at the paucity of physicians in this region, he would be amazed to find even a few individuals who deserve to be classed among the human race; the name of men they do not merit. (*Jour. Universel.*)

Notices of New Publications.

COOPER'S SURGERY.—James V. Seaman, Bookseller, has in press, and will shortly publish, "The First Lines of the Practice of Surgery," designed as an Introduction for Students, and a concise book of Reference for Practitioners, with sixteen copper-plate engravings. By Samuel Cooper, late Surgeon to the Forces; member of the College of Surgeons, of the Medical and Chirurgical Society of London, and of the Medical Society of Marseilles, &c. with Notes by A. H. Stevens, M. D. One of the Surgeons to the New-York Hospital, &c. &c. in two large volumes, 8vo. from the 4th London edition.

SMITH'S BOTANY.—The same Bookseller has also in press—"A Grammar of Botany," illustrative of Artificial as well as Natural Classification, with an explanation of *Jussieu's System*. By Sir James Edward Smith, M. D. F. R. S. &c. &c. President of the Linnæan Society, in one volume, 8vo. Illustrated with twenty-one elegant coloured engravings.

PARIS'S PHARMACOLOGIA. A handsome American edition of this valuable work has just been published in this city.

Washington, January, 18, 1822.

SIR,

I enclose you the abstract of the Meteorological Observations at our military posts, for the first quarter of 1821 ; from which it appears, that the mean temperature in January was 28.19, in February 39.86, in March 41.51, and for the quarter 36.52, being 2.14 degrees lower than that for the corresponding quarter of 1820. In January the prevailing winds were N.W. S.W. & N. E. ; in February and March N. W., S. W. and S. ; and for the quarter N. W. Out of thirty-two places of observation in January, the prevailing weather was fair at twenty-three, cloudy at seven, and rainy at two ; out of thirty-three places in February it was fair at eighteen, cloudy at thirteen, and rainy at two ; and out of thirty-three in March it was fair at thirty, and cloudy at three. In January the proportion was about $15\frac{1}{2}$ fair, $8\frac{1}{2}$ cloudy, $3\frac{1}{2}$ rain, and $3\frac{1}{2}$ snow ; in February $12\frac{1}{4}$ fair, $9\frac{1}{4}$ cloudy, $4\frac{1}{2}$ rain, and two snow ; in March 19 fair, $8\frac{1}{4}$ cloudy, 2 rain, and $1\frac{3}{4}$ snow ; and for the quarter $15\frac{1}{2}$ fair, $8\frac{1}{2}$ cloudy, 2 rain, and $1\frac{3}{4}$ snow. In the corresponding quarter of 1820, the proportion was 17 fair, $7\frac{1}{4}$ cloudy, 3 rain, and $2\frac{3}{4}$ snow. The greatest proportion of fair weather in both years is in March. On comparing the extreme western with the eastern posts, in about the same latitude, we find that in January the mean temperature at St. Peter's is 16.13 degrees lower than that at Sackets Harbour, which is about 18° east of it. At Council Bluffs the mean temperature was $8\frac{1}{2}$ degrees below that at New Port, R. I. which is about 25 degrees east of it. At Mackinac, situated on an island between lake Michigan and lake Huron, the mean temperature is but $1\frac{1}{2}$ degree below that at Plattsburgh in N. Y., although it is about 11 degrees west, and upwards of 1 degree north of it ; while the mean temperature at St. Peter's is 6.62 degrees below that at Mackinac, which is about 9 degrees east, and $1\frac{1}{2}$ north of it, the local situation of Mackinac giving rise to the difference. The greatest degree of cold was 36 at Prairie du Chiens, and 32 at St. Peter's. The greatest noted in 1820 was 30 at the latter place. The range of the thermometer in January was 111, and in 1820, 109 ; in February 94, and in 1820, 96 ; in March 90, and in 1820, 88.

Very respectfully,

Your obedient servant,

JOS. LOVELL,

Surgeon General, U. S. A

DR. JAMES R. MANLEY.

JANUARY, 1821.

| PLACES. | THERMOMETER. | | | | | | WINDS. | | | | | | WEATHER. | | | | | | REMARKS. | | | | | | | | | | | |
|----------------------|--------------|-----|-------------|-----|-------------------|-----|-------------|--------------|--------|-----------|----------|------|----------|------|----------|------|------|-------|----------|-------|-------|------|------|------|--------|------|------|------|------|----------------------------|
| | Highest Deg. | | Lowest Deg. | | Mean Temperature. | | Hotest day. | Coldest day. | WINDS. | | | | | | WEATHER. | | | | | | | | | | | | | | | |
| | VII. | II. | VII. | II. | VII. | II. | | | N. | N.W. | N.E. | E. | S.E. | S. | S.W. | W. | Fair | Clou. | | Rain. | Snow. | | | | | | | | | |
| | | | | | | | | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | days | |
| Mackinac, | 44 | 33 | 27 | -25 | -14 | -6 | 11.86 | 15.19 | 15.00 | Wed. 31 | Wed. 24. | 5 | 3 | 3 | 4 | 1 | 7 | 4 | 11 | W. | 15 | 5 | 2 | 9 | Fair | | | | | |
| Plattsburgh, | 40 | 47 | 45 | -23 | -8 | -10 | 12.32 | 18.93 | 15.22 | Wed. 31. | Thu. 25. | 3 | 8 | 3 | 2 | 3 | 8 | 3 | 4 | N.W. | 16 | 9 | 7 | 7 | Fair | | | | | |
| St. Peter, | 30 | 40 | 32 | -32 | -8 | -22 | 1.74 | 14.41 | 6.00 | Tues. 30. | Wed. 24. | 8 | 3 | 3 | 1 | 3 | 6 | 1 | 3 | N.W. | 16 | 5 | 3 | 7 | Fair | | | | | |
| Sackett's Harbour, | 55 | 60 | 60 | 4 | 9 | 9 | 21.83 | 25.67 | 23.03 | Wed. 31. | Mon. 15. | 2 | 6 | 6 | 1 | 7 | 4 | 4 | 4 | N.W. | 9 | 18 | 1 | 3 | Cloudy | | | | | |
| Portland, | 20 | 44 | 15 | -14 | 10 | -18 | 4.45 | 22.03 | 10.09 | " 31. | Fri. 26. | 1 | 11 | 1 | 1 | 1 | 1 | 1 | 4 | N.W. | 9 | 20 | 1 | 2 | Cloudy | | | | | |
| Fort Niagara, | 50 | 60 | 40 | -8 | -6 | -2 | 19.42 | 24.16 | 20.48 | " 31. | Thu. 25. | 1 | 18 | 1 | 5 | 1 | 4 | 1 | 6 | N.W. | 22 | 7 | 3 | 7 | Cloudy | | | | | |
| Toronto, N. H. | 34 | 48 | 45 | -12 | -4 | 0 | 15.70 | 22.48 | 20.64 | " 31. | Thu. 25. | 8 | 5 | 1 | 1 | 1 | 16 | 3 | 2 | S. | 12 | 15 | 3 | 2 | Fair | | | | | |
| Detroit, | 46 | 50 | 50 | -22 | 3 | 0 | 11.45 | 22.35 | 16.96 | " 31. | Thu. 25. | 1 | 1 | 1 | 1 | 1 | 9 | 1 | 6 | N.W. | 16 | 12 | 2 | 3 | Cloudy | | | | | |
| Waterliet, N. Y. | 40 | 51 | 52 | -18 | 0 | -4 | 3.77 | 17.77 | 8.67 | Tues. 30. | Wed. 24. | 1 | 1 | 1 | 1 | 6 | 1 | 7 | 3 | N.W. | 19 | 8 | 2 | 2 | Fair | | | | | |
| Prairie du Chien, | 40 | 49 | 31 | -36 | -1 | -15 | 10.83 | 21.83 | 14.12 | Wed. 31. | Thu. 25. | 4 | 8 | 8 | 2 | 1 | 4 | 4 | 11 | N.W. | 21 | 7 | 2 | 3 | Fair | | | | | |
| Marblehead, | 40 | 50 | 40 | -20 | -3 | -10 | 14.70 | 21.68 | 18.41 | " 31. | Thu. 25. | 1 | 17 | 9 | 1 | 1 | 4 | 4 | 8 | N.W. | 23 | 4 | 1 | 4 | Fair | | | | | |
| Boston, | 34 | 48 | 44 | -10 | 0 | -4 | 10.93 | 23.06 | 12.70 | Tues. 30. | Thu. 25. | 2 | 9 | 4 | 1 | 1 | 1 | 6 | 11 | N.W. | 20 | 16 | 2 | 3 | Fair | | | | | |
| Fort Armstrong, | 46 | 56 | 50 | -28 | -2 | -24 | 9.12 | 22.70 | 16.54 | Mon. 8 | Wed. 3. | 1 | 1 | 1 | 1 | 1 | 7 | 12 | 10 | N.W. | 18 | 13 | 2 | 3 | Cloudy | | | | | |
| Chicago, | 41 | 43 | 42 | -18 | 5 | 2 | 13.03 | 21.19 | 16.54 | " 30. | Thu. 25. | 2 | 13 | 4 | 1 | 1 | 4 | 6 | 7 | N.W. | 18 | 5 | 2 | 3 | Fair | | | | | |
| Council Bluffs, | 38 | 44 | 36 | -12 | 6 | -6 | 9.12 | 22.70 | 13.48 | Wed. 31. | Thu. 25. | 5 | 14 | 12 | 1 | 1 | 1 | 6 | 5 | N.W. | 18 | 1 | 2 | 6 | Fair | | | | | |
| Newport, R. I. | 41 | 44 | 41 | -6 | 4 | -8 | 21.25 | 25.54 | 20.93 | " 31. | Thu. 25. | 3 | 13 | 1 | 1 | 1 | 1 | 6 | 4 | N.W. | 26 | 2 | 1 | 4 | Fair | | | | | |
| New-London, Ct. | 38 | 46 | 30 | -15 | -2 | -5 | 17.80 | 27.64 | 23.19 | " 31. | Thu. 25. | 3 | 12 | 1 | 1 | 1 | 1 | 6 | 4 | N.W. | 23 | 5 | 1 | 6 | Fair | | | | | |
| Frankford, Pa. | 32 | 34 | 50 | -14 | 10 | -4 | 18.83 | 23.70 | 25.19 | " 31. | Thu. 25. | 3 | 16 | 2 | 1 | 1 | 1 | 14 | 2 | N.W. | 20 | 7 | 1 | 7 | Fair | | | | | |
| West Point, | 38 | 55 | 47 | -6 | 10 | 2 | 16.70 | 30.48 | 19.48 | " 31. | Thu. 25. | 13 | 13 | 10 | 2 | 1 | 1 | 6 | 1 | N.W. | 16 | 5 | 1 | 6 | Fair | | | | | |
| Fort Mifflin, | 37 | 51 | 46 | -7 | 4 | 10 | 18.25 | 30.41 | 22.51 | " 31. | Thu. 25. | 2 | 21 | 2 | 1 | 1 | 1 | 1 | 1 | N.W. | 20 | 7 | 1 | 7 | Fair | | | | | |
| Fort Mc. Henry, | 32 | 48 | 43 | -4 | 9 | 6 | 19.06 | 29.19 | 26.16 | " 31. | Thu. 25. | 2 | 11 | 1 | 1 | 1 | 4 | 3 | 5 | N.W. | 18 | 7 | 1 | 6 | Fair | | | | | |
| Annapolis, | 44 | 48 | 47 | 16 | 20 | 18 | 30.25 | 33.06 | 32.12 | " 31. | Thu. 25. | 4 | 14 | 9 | 1 | 1 | 4 | 3 | 6 | N.W. | 17 | 10 | 1 | 4 | Fair | | | | | |
| Fort Washington, | 50 | 63 | 60 | 14 | 16 | 16 | 33.22 | 39.77 | 35.22 | " 31. | Thu. 25. | 11 | 10 | 12 | 2 | 2 | 1 | 4 | 3 | N.W. | 22 | 5 | 1 | 3 | Fair | | | | | |
| Norfolk, Va. | 54 | 68 | 58 | 12 | 24 | 20 | 38.80 | 44.00 | 41.12 | " 31. | Thu. 25. | 2 | 7 | 6 | 1 | 1 | 1 | 3 | 3 | N.E. | 15 | 9 | 6 | 2 | Fair | | | | | |
| Fort Johnston, N. C. | 62 | 73 | 68 | 30 | 32 | 20 | 42.83 | 52.09 | 47.54 | Tues. 30. | Sun. 7. | 11 | 10 | 12 | 2 | 2 | 3 | 2 | 2 | N. | 15 | 7 | 1 | 2 | Fair | | | | | |
| Camp Ripley, | 68 | 74 | 70 | 26 | 47 | 34 | 41.83 | 52.25 | 47.32 | " 30. | Thu. 25. | 2 | 7 | 7 | 1 | 1 | 4 | 3 | 2 | N.W. | 14 | 10 | 6 | 1 | Fair | | | | | |
| Montpelier, Alabama, | 68 | 73 | 68 | 20 | 36 | 28 | 42.67 | 52.25 | 47.32 | Mon. 22. | Thu. 25. | 6 | 6 | 7 | 4 | 4 | 3 | 3 | 2 | N.W. | 9 | 4 | 12 | 2 | Fair | | | | | |
| Fort Scott, | 70 | 73 | 68 | 36 | 32 | 31 | 49.32 | 59.48 | 54.03 | " 22. | Thu. 25. | 4 | 4 | 3 | 3 | 4 | 4 | 1 | 2 | N.E. | 14 | 10 | 7 | 1 | Fair | | | | | |
| Baton Rouge, | 68 | 73 | 67 | 23 | 36 | 34 | 43.16 | 53.83 | 52.83 | Tues. 30. | Thu. 25. | 4 | 6 | 3 | 3 | 3 | 3 | 4 | 8 | N.W. | 10 | 4 | 12 | 7 | Cloudy | | | | | |
| Fernandina, | 69 | 74 | 67 | 30 | 36 | 34 | 50.35 | 58.54 | 54.12 | Tues. 23. | Thu. 25. | 4 | 6 | 5 | 5 | 5 | 5 | 2 | 1 | N.E. | 6 | 14 | 14 | 7 | Cloudy | | | | | |
| Fort Gadsden, | 60 | 75 | 68 | 26 | 43 | 36 | 49.77 | 58.22 | 52.70 | Tues. 30. | Thu. 25. | 5 | 5 | 8 | 2 | 2 | 2 | 4 | 1 | N.E. | 10 | 12 | 14 | 7 | Rain | | | | | |
| Bay of St. Louis, | 70 | 72 | 64 | 30 | 38 | 36 | 48.32 | 52.51 | 50.83 | Tues. 16. | Sat. 6. | 5 | 5 | 8 | 2 | 2 | 2 | 2 | 8 | N.E. | 9 | 13 | 9 | 9 | Cloudy | | | | | |
| Fort St. Philip. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | No observ. for this month. |

24th aurora borealis.

FEBRUARY, 1821.

| PLACES. | THERMOMETER. | | | | | Hotest day. | Coldest day. | WINDS. | | | | | | | | | | Prevailing. | WEATHER. | | | | | REMARKS. | | | |
|----------------------|--------------|-------------|-------|--------------|-----|-------------|--------------|--------|------|------|----|------|-----------|-----------|----|------|-------|-------------|----------|-------|------|------|------|----------|--------|--------|------|
| | Highest Deg. | Lowest Deg. | Mean. | Temperature. | | | | N. | N.W. | N.E. | E. | S.E. | S. | S.W. | W. | Fair | Clou. | | Rain. | Snow. | | | | | | | |
| | | | | VII. | IX. | | | | | | | | | | | | | | | | days | days | days | | days | days | days |
| Mackinac, | 37 | 32 | 23 | -3 | 13 | 14 | 18 | 39 | 22 | 25 | 20 | 03 | Mon. 12. | Tues. 27. | 7 | 3 | 2 | 11 | 2 | 7 | 3 | 13 | 6 | 2 | 7 | Fair | |
| Plattsburgh, | 35 | 42 | 44 | 2 | 22 | 25 | 23 | 39 | 29 | 07 | 27 | 96 | Mon. 12. | Wed. 28. | 4 | 1 | 1 | 4 | 1 | 3 | 17 | 11 | 1 | 1 | 3 | Cloudy | |
| St. Peter's, | 24 | 46 | 36 | -11 | 6 | -6 | 7 | 21 | 67 | 13 | 64 | | Sun. 18. | Mon. 26. | 4 | 5 | 6 | 4 | 2 | 9 | 12 | 10 | 3 | 3 | Fair | | |
| Sackett's Harbour, | 50 | 52 | 44 | 10 | 10 | 14 | 30 | 03 | 33 | 50 | 33 | 21 | Thur. 1. | Mon. 19. | 3 | 2 | 1 | 3 | 1 | 3 | 9 | 9 | 10 | 3 | Fair | | |
| Portland, | 27 | 43 | 35 | 5 | 22 | 12 | 17 | 61 | 33 | 25 | 27 | 10 | Sat. 10. | Tues. 6. | 7 | 9 | 4 | 4 | 2 | 5 | 3 | 14 | 6 | 2 | Cloudy | | |
| Fort Niagara, | 46 | 52 | 40 | 16 | 22 | 18 | 28 | 77 | 35 | 10 | 30 | 16 | Mon. 12. | Tues. 97. | 4 | 11 | 2 | 6 | 2 | 4 | 5 | 4 | 14 | 2 | Fair | | |
| Portsmouth, N. H. | 46 | 43 | 40 | 16 | 26 | 26 | 23 | 25 | 35 | 21 | 31 | 57 | Thur. 1. | Tues. 6. | 2 | 10 | 2 | 4 | 2 | 4 | 8 | 10 | 3 | 3 | Fair | | |
| Detroit, | 40 | 45 | 40 | 16 | 30 | 23 | 26 | 60 | 35 | 60 | 31 | 78 | Mon. 12. | Sun. 25. | 2 | 2 | 1 | 2 | 4 | 3 | 8 | 6 | 10 | 2 | Cloudy | | |
| Watervliet, N. Y. | 33 | 52 | 42 | 9 | 35 | 26 | 26 | 17 | 35 | 03 | 31 | 21 | Mon. 12. | Tues. 6. | 1 | 14 | 2 | 4 | 2 | 4 | 3 | 3 | 6 | 1 | Fair | | |
| Prairie du Chien, | 34 | 45 | 33 | -1 | 22 | 2 | 13 | 60 | 25 | 75 | 20 | 64 | Sun. 11. | Wed. 7. | 1 | 4 | 3 | 2 | 4 | 3 | 2 | 4 | 10 | 2 | Fair | | |
| Marblehead, | 36 | 44 | 33 | 10 | 27 | 20 | 26 | 14 | 31 | 21 | 27 | 35 | Tues. 20. | Tues. 6. | 6 | 12 | 2 | 2 | 2 | 4 | 3 | 3 | 15 | 6 | Fair | | |
| Boston, | 40 | 43 | 33 | 16 | 27 | 21 | 29 | 21 | 35 | 71 | 23 | 85 | Sun. 20. | Wed. 7. | 2 | 6 | 3 | 2 | 2 | 4 | 4 | 4 | 13 | 2 | Cloudy | | |
| Fort Armstrong, | 45 | 55 | 18 | 1 | 25 | 8 | 20 | 53 | 33 | 28 | 22 | 57 | Mon. 19. | Sat. 24. | 1 | 1 | 2 | 4 | 5 | 4 | 4 | 5 | 10 | 2 | Fair | | |
| Chicago, | 40 | 40 | 46 | -2 | 19 | 4 | 25 | 25 | 32 | 23 | 28 | 71 | Mon. 19. | Fri. 23. | 3 | 7 | 4 | 5 | 1 | 1 | 3 | 1 | 13 | 2 | Cloudy | | |
| Council Bluffs, | 35 | 54 | 43 | -2 | 13 | 4 | 17 | 50 | 32 | 07 | 24 | 04 | Sun. 18. | Tues. 6. | 1 | 11 | 1 | 4 | 2 | 7 | 4 | 4 | 7 | 4 | Fair | | |
| Newport, R. I. | 35 | 45 | 31 | 20 | 31 | 29 | 33 | 33 | 37 | 75 | 30 | 42 | Sat. 10. | Tues. 6. | 5 | 12 | 8 | 1 | 3 | 3 | 6 | 1 | 12 | 2 | Fair | | |
| New-London, | 42 | 45 | 4 | 8 | 30 | 32 | 32 | 75 | 36 | 61 | 31 | 71 | Tues. 20. | " | 1 | 26 | 3 | 1 | 3 | 6 | 1 | 1 | 10 | 2 | Fair | | |
| West Point, | 45 | 43 | 40 | 23 | 30 | 32 | 32 | 75 | 36 | 92 | 35 | 61 | Sun. 25. | " | 1 | 10 | 3 | 8 | 1 | 3 | 6 | 1 | 1 | 5 | Rain | | |
| Frankford, Pa. | 47 | 53 | 54 | 21 | 33 | 29 | 33 | 17 | 43 | 85 | 37 | 25 | Tues. 20. | " | 6. | 8 | 9 | 1 | 1 | 3 | 3 | 1 | 7 | 9 | Fair | | |
| Fort Mifflin, | 49 | 63 | 52 | 21 | 31 | 30 | 33 | 42 | 40 | 60 | 36 | 75 | " | Sun. 25 | " | 20. | 10 | 6 | 3 | 1 | 3 | 1 | 10 | 11 | Fair | | |
| Fort Mc. Henry, | 42 | 53 | 54 | 20 | 35 | 31 | 41 | 14 | 41 | 71 | 38 | 57 | " | 25. | " | 20. | 8 | 1 | 1 | 3 | 1 | 1 | 7 | 9 | Fair | | |
| Annapolis, | 40 | 52 | 52 | 31 | 33 | 33 | 43 | 03 | 42 | 71 | 41 | 89 | Mon. 12. | " | 1 | 12 | 9 | 2 | 1 | 3 | 1 | 12 | 8 | 6 | Fair | | |
| Port Washington, | 54 | 62 | 58 | 32 | 42 | 42 | 43 | 14 | 49 | 75 | 43 | 17 | Tues. 20. | " | 5 | 5 | 8 | 5 | 1 | 3 | 5 | 2 | 10 | 10 | Cloudy | | |
| Norfolk, Va. | 65 | 63 | 52 | 45 | 52 | 49 | 52 | 07 | 55 | 53 | 52 | 82 | Fri. 23. | " | 1 | 11 | 3 | 2 | 2 | 11 | 2 | 6 | 11 | 9 | Cloudy | | |
| Fort Johnston, N. C. | 61 | 71 | 65 | 31 | 46 | 46 | 55 | 67 | 61 | 17 | 60 | 39 | Wed. 28. | " | 2 | 9 | 3 | 1 | 2 | 4 | 5 | 1 | 12 | 11 | Cloudy | | |
| Camp Ripley, | 66 | 78 | 63 | 27 | 50 | 39 | 52 | 42 | 69 | 46 | 68 | 82 | Sat. 10. | Fri. 23. | 2 | 14 | 2 | 2 | 1 | 1 | 1 | 13 | 9 | 8 | Fair | | |
| Montpelier, Alabama, | 63 | 79 | 73 | 36 | 59 | 44 | 56 | 57 | 67 | 07 | 61 | 50 | Tues. 13. | Sat. 24. | 1 | 7 | 2 | 1 | 4 | 1 | 4 | 6 | 6 | 12 | 14 | Cloudy | |
| Fort Scott, | 72 | 83 | 73 | 49 | 50 | 49 | 62 | 32 | 71 | 28 | 63 | 14 | Thur. 22. | Sun. 25. | 1 | 1 | 1 | 4 | 2 | 17 | 7 | 17 | 4 | 4 | Rain | | |
| Baton Rouge, | 70 | 76 | 72 | 36 | 44 | 46 | 54 | 85 | 67 | 00 | 63 | 17 | Sun. 4. | Sat. 24. | 1 | 1 | 3 | 3 | 3 | 7 | 7 | 18 | 8 | 5 | Cloudy | | |
| Ferrandien, | 71 | 81 | 73 | 42 | 53 | 50 | 60 | 83 | 61 | 09 | 61 | 39 | Fri. 23. | Sat. 17. | 1 | 1 | 1 | 1 | 1 | 17 | 7 | 18 | 8 | 5 | Fair | | |
| Fort Gadsden, | 65 | 78 | 69 | 44 | 53 | 51 | 60 | 00 | 70 | 00 | 53 | 21 | Mon. 5. | Sat. 17. | 1 | 4 | 4 | 4 | 4 | 7 | 7 | 18 | 18 | 5 | Cloudy | | |
| Bay of St. Louis, | 70 | 73 | 70 | 46 | 52 | 43 | 59 | 28 | 63 | 39 | 62 | 35 | Mon. 12. | Sat. 24. | 1 | 2 | 2 | 1 | 1 | 14 | 4 | 15 | 15 | 6 | Cloudy | | |
| Fort St. Philip. | 69 | 79 | 63 | 44 | 67 | 45 | 60 | 25 | 67 | 90 | 62 | 64 | Tues. 13. | Sat. 24. | 1 | 1 | 4 | 3 | 3 | 8 | 14 | 10 | 10 | 4 | Fair | | |

Fort St. Louis.

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MARCH, 1821.

| PLACES. | THERMOMETER. | | | | | | | | | | Hottest day. | Coldest day. | WINDS. | | | | | | | | | | Prevailing. | WEATHER. | | | | REMARKS. | | | | |
|----------------------|--------------|-----|-------------|-----|-------------------|-----|------|-----|------|-----|--------------|--------------|-----------|-----------|------|-----|------|-----|------|-----|------|-----|-------------|----------|-----|-------------|-----|----------|------------|-------------|-------------|---------------------------|
| | Highest Deg. | | Lowest Deg. | | Mean Temperature. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | VII. | II. | VII. | II. | VII. | II. | VII. | II. | VII. | II. | | | VII. | II. | VII. | II. | VII. | II. | VII. | II. | VII. | II. | | VII. | II. | VII. | II. | | Fair days. | Clou. days. | Rain. days. | Snow. days. |
| Mackinac, | 33 | 38 | 4 | 0 | 8 | -2 | 16 | 61 | 24 | 67 | 20 | 70 | Mon. 12. | Sun. 18 | 6 | 4 | 5 | 3 | 6 | 7 | 1 | 10 | 1 | 1 | 13 | W. | 28 | 4 | 1 | 3 | Fair | 8th wild geese returning. |
| Plattsburgh, | 36 | 50 | 45 | 0 | 23 | 12 | 24 | 61 | 33 | 12 | 30 | 16 | Tues. 13. | Mon. 19 | 4 | 4 | 4 | 2 | 2 | 2 | 6 | 6 | 6 | 5 | 3 | S. & N.W. | 17 | 6 | 3 | 8 | Fair | |
| St. Peters, | 40 | 54 | 40 | 6 | 16 | 5 | 22 | 70 | 37 | 22 | 27 | 19 | Fri. 30. | Sat. 17. | 7 | 7 | 7 | 1 | 1 | 2 | 4 | 4 | 4 | 4 | 3 | N.W. | 19 | 6 | 3 | 3 | Cloudy | |
| Sackett's Harbour, | 50 | 48 | 44 | 20 | 22 | 20 | 31 | 67 | 35 | 32 | 35 | 09 | Tues. 20. | Sat. 24. | 1 | 1 | 5 | 4 | 1 | 6 | 6 | 4 | 4 | 4 | 6 | N.W. | 6 | 19 | 1 | 5 | Fair | 21st aurora borealis. |
| Portland, | 36 | 50 | 35 | -1 | 16 | 10 | 22 | 74 | 38 | 75 | 24 | 48 | Thu. 15. | Mon. 19. | 5 | 8 | 8 | 1 | 1 | 5 | 4 | 4 | 4 | 4 | 5 | N.W. | 14 | 10 | 3 | 4 | Fair | |
| Portsmouth, N. H. | 43 | 55 | 40 | 11 | 18 | 12 | 27 | 09 | 36 | 00 | 29 | 35 | Tues. 13. | Sun. 18. | 3 | 10 | 10 | 1 | 1 | 1 | 8 | 8 | 4 | 4 | 2 | N.W. | 16 | 10 | 4 | 4 | Fair | |
| Detroit, | 36 | 52 | 48 | 10 | 24 | 20 | 29 | 29 | 38 | 00 | 34 | 16 | Thu. 15. | Mon. 19. | 4 | 15 | 15 | 1 | 2 | 1 | 10 | 9 | 7 | 4 | 4 | S. | 23 | 17 | 1 | 4 | Cloudy | 8th wild geese returning. |
| Watervliet, N. Y. | 46 | 58 | 42 | 12 | 24 | 14 | 28 | 35 | 30 | 32 | 33 | 67 | Tues. 13. | Tues. 27. | 2 | 2 | 2 | 1 | 2 | 1 | 3 | 3 | 3 | 3 | 4 | N.W. | 13 | 7 | 1 | 3 | Fair | |
| Prairie du Chien, | 32 | 65 | 56 | 8 | 22 | 17 | 26 | 64 | 41 | 67 | 32 | 70 | Thu. 15. | Mon. 19. | 11 | 11 | 11 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | N.W. | 21 | 9 | 3 | 3 | Fair | |
| Marchehead, | 37 | 67 | 47 | 6 | 22 | 16 | 23 | 64 | 40 | 32 | 30 | 25 | Sat. 31. | Sat. 17. | 8 | 11 | 8 | 1 | 2 | 1 | 7 | 2 | 2 | 2 | 10 | N.W. | 19 | 6 | 2 | 3 | Fair | 8th wild geese returning. |
| Boston, | 31 | 60 | 40 | 9 | 20 | 13 | 26 | 96 | 37 | 48 | 27 | 83 | Thu. 15. | Mon. 19. | 21 | 21 | 21 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | N.W. | 22 | 10 | 1 | 4 | Fair | |
| Fort Armstrong, | 35 | 64 | 42 | 12 | 18 | 16 | 29 | 64 | 39 | 48 | 31 | 51 | Mon. 5. | Mon. 19. | 3 | 6 | 6 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 8 | S. | 19 | 5 | 1 | 2 | Fair | |
| Chicago, | 37 | 68 | 56 | 10 | 22 | 24 | 29 | 70 | 41 | 35 | 33 | 90 | Wed. 14. | Sun. 18. | 2 | 3 | 3 | 1 | 1 | 1 | 11 | 2 | 2 | 2 | 8 | N.E. & S.W. | 21 | 13 | 1 | 4 | Fair | |
| Council Bluffs, | 32 | 63 | 57 | 8 | 24 | 17 | 29 | 32 | 37 | 96 | 31 | 09 | Wed. 14. | Mon. 26. | 3 | 10 | 10 | 8 | 2 | 4 | 3 | 3 | 3 | 3 | 4 | N.W. | 16 | 9 | 1 | 2 | Fair | |
| Newport, R. I. | 51 | 64 | 46 | 13 | 18 | 12 | 29 | 54 | 45 | 83 | 34 | 96 | Fri. 23. | Sat. 17. | 2 | 3 | 3 | 1 | 2 | 4 | 4 | 4 | 4 | 4 | 6 | N.W. | 21 | 13 | 1 | 4 | Fair | |
| New-London, Ct. | 45 | 51 | 45 | 16 | 24 | 18 | 33 | 25 | 39 | 74 | 30 | 25 | Fri. 16. | Mon. 19. | 1 | 4 | 4 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 9 | N.W. | 18 | 6 | 3 | 3 | Fair | |
| West Point, | 40 | 51 | 41 | 12 | 24 | 19 | 30 | 09 | 30 | 80 | 32 | 45 | Sat. 31. | " 19. | 1 | 13 | 13 | 4 | 2 | 1 | 3 | 3 | 3 | 3 | 1 | N.W. | 21 | 8 | 1 | 4 | Fair | |
| Frankford, Pa. | 31 | 41 | 52 | 21 | 24 | 30 | 32 | 54 | 37 | 87 | 33 | 80 | Thu. 15. | Tues. 6. | 1 | 29 | 29 | 4 | 4 | 3 | 2 | 2 | 2 | 2 | 8 | N.W. | 27 | 1 | 1 | 3 | Fair | |
| Fort Mifflin, | 50 | 60 | 45 | 25 | 29 | 22 | 35 | 74 | 47 | 61 | 39 | 00 | Fri. 16. | Sun. 18. | 1 | 12 | 12 | 2 | 1 | 3 | 2 | 2 | 2 | 2 | 3 | N.W. | 15 | 13 | 1 | 2 | Fair | |
| Frankford, Pa. | 53 | 61 | 53 | 19 | 30 | 26 | 36 | 48 | 42 | 55 | 33 | 70 | Thu. 1. | Wed. 28. | 1 | 12 | 12 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 5 | N.W. & S.W. | 16 | 11 | 1 | 2 | Fair | |
| Fort Mc. Henry, | 55 | 63 | 60 | 18 | 31 | 30 | 31 | 06 | 40 | 00 | 41 | 29 | " 1. | Mon. 19. | 2 | 23 | 23 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | N.W. | 22 | 4 | 1 | 2 | Fair | |
| Annapolis, | 58 | 63 | 51 | 32 | 31 | 35 | 43 | 12 | 47 | 45 | 45 | 96 | Fri. 16. | Mon. 19. | 1 | 13 | 13 | 3 | 2 | 1 | 3 | 5 | 3 | 3 | 5 | N.W. | 19 | 9 | 5 | 2 | Fair | |
| Fort Washington, | 61 | 73 | 65 | 37 | 31 | 30 | 45 | 06 | 52 | 43 | 48 | 03 | " 16. | Sat. 17. | 2 | 12 | 12 | 1 | 1 | 6 | 1 | 5 | 1 | 1 | 10 | N.W. | 22 | 4 | 1 | 4 | Fair | |
| Norfolk, Va. | 64 | 73 | 65 | 37 | 31 | 30 | 45 | 06 | 52 | 43 | 48 | 03 | " 16. | Sat. 17. | 1 | 12 | 12 | 1 | 1 | 6 | 3 | 5 | 1 | 1 | 15 | S.W. | 20 | 9 | 5 | 2 | Fair | |
| Fort Johnston, N. C. | 60 | 72 | 65 | 30 | 35 | 42 | 50 | 67 | 55 | 00 | 57 | 96 | Thu. 1. | Thu. 29. | 9 | 7 | 7 | 3 | 2 | 9 | 2 | 2 | 2 | 2 | 2 | N. & S. | 26 | 4 | 1 | 1 | Fair | |
| Camp Ripley, | 66 | 72 | 65 | 30 | 41 | 38 | 50 | 51 | 65 | 09 | 62 | 03 | Sun. 4. | Sun. 18. | 6 | 10 | 10 | 3 | 2 | 2 | 4 | 2 | 2 | 2 | 6 | N.W. | 19 | 11 | 1 | 1 | Fair | |
| Fort Johnston, N. C. | 54 | 85 | 76 | 33 | 51 | 45 | 50 | 43 | 65 | 22 | 62 | 03 | Sat. 24. | Sun. 27. | 1 | 10 | 11 | 4 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | N.W. | 25 | 3 | 3 | 5 | Fair | |
| Montpelier, Alabama, | 60 | 83 | 72 | 35 | 45 | 40 | 46 | 41 | 61 | 25 | 55 | 70 | Sat. 3. | Thu. 29. | 3 | 12 | 12 | 4 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | N.W. | 19 | 7 | 1 | 3 | Fair | |
| Fort Scott, | 72 | 86 | 73 | 31 | 60 | 42 | 53 | 35 | 67 | 33 | 57 | 64 | Sun. 4. | Wed. 7. | 1 | 10 | 10 | 6 | 1 | 1 | 5 | 4 | 4 | 4 | 1 | N.W. | 7 | 21 | 5 | 4 | Cloudy | |
| Biton Rouge, | 70 | 72 | 70 | 35 | 44 | 40 | 50 | 74 | 62 | 51 | 53 | 35 | Sat. 3. | Wed. 7. | 1 | 5 | 5 | 1 | 1 | 4 | 4 | 1 | 1 | 1 | 10 | S.W. | 21 | 10 | 9 | 4 | Fair | |
| Fernandina, | 63 | 80 | 74 | 42 | 45 | 43 | 53 | 67 | 63 | 16 | 55 | 09 | Thu. 1. | Wed. 7. | 1 | 13 | 13 | 9 | 1 | 2 | 2 | 3 | 3 | 3 | 6 | N.W. | 17 | 9 | 10 | 9 | Fair | |
| Fort Gadsden, | 66 | 83 | 63 | 47 | 37 | 36 | 52 | 22 | 66 | 35 | 56 | 80 | Sat. 3. | Wed. 28. | 1 | 13 | 13 | 8 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | N.W. | 19 | 4 | 3 | 2 | Fair | |
| Bay of St. Louis, | 63 | 76 | 72 | 35 | 50 | 45 | 56 | 58 | 62 | 12 | 53 | 77 | Mon. 5. | Wed. 28. | 4 | 2 | 2 | 1 | 2 | 1 | 4 | 1 | 1 | 1 | 13 | S.W. | 21 | 9 | 4 | 3 | Fair | |
| Fort St. Philip. | 65 | 75 | 71 | 40 | 49 | 47 | 51 | 45 | 63 | 67 | 50 | 00 | Thu. 6. | Wed. 28. | 1 | 4 | 4 | 8 | 1 | 8 | 4 | 4 | 4 | 4 | 4 | N.E. & S.E. | 25 | 4 | 2 | 2 | Fair | |

8th wild geese returning.

21st aurora borealis.

3d. wild geese returning.

8th wild geese returning.

